

Section 3 Sampling Strategy

3.1 Excavation Sampling Strategy

In general, the archaeological subsurface test excavations were distributed throughout the study area to provide representative coverage and assess the stratigraphy and potential for subsurface cultural resources for the entire area of Section 4. The sampling strategy was developed in consideration of the following:

- Sediment types
- Natural geographic features, such as streams and ponds
- Background research, including information from historic maps and Land Commission Award (LCA) documents
- Results of previous archaeological studies in the vicinity
- Results of consultation with the Native Hawaiian community
- Assessment of the impact of prior land development
- Consideration of safety concerns for actually carrying out the archaeological work

Selection of the sample of test locations to undergo subsurface testing was primarily based on the relationship to *kuleana* LCAs as indicators of areas of intensive traditional Hawaiian activity. A secondary factor in selection was consideration of the proximity of landscape features, particularly streams, springs, and ponds, which also would have been locales of intensive traditional Hawaiian activity. Subsurface testing was also focused on the transit station locations due to the relatively high density of subsurface impacts related to the stations' construction and also because the stations would be problematic to relocate owing to geographical and engineering constraints. The greatest factors that limited the survey effort were:

- The survey area's large (13.87 acres), dispersed (6.9 km/4.3 miles) expanse;
- The survey area's highly developed and highly active setting (in-use city streets, sidewalks, and buildings); and
- The dense, complex array of existing subsurface utilities in the survey area.

The AISP proposed 232 test excavations within the 13.87-acre project footprint, arranged much like a string of pearls along the City Center corridor (Figure 14 and Figure 15). The AISP served as a framework to guide the archaeological inventory survey work. This section details the subsurface sampling strategy that was the primary means of archaeological cultural resource inventory.

While a good faith effort was made to carry out these specific excavations it was anticipated that 3 percent to 10 percent of these specific proposed excavations would not be feasible for whatever combination of reasons, including current built environment constraints, public safety, and traffic management requirements. The SHPD was kept in close consultation regarding any deviations from the terms of the plan and if more than 5 percent of the proposed excavations

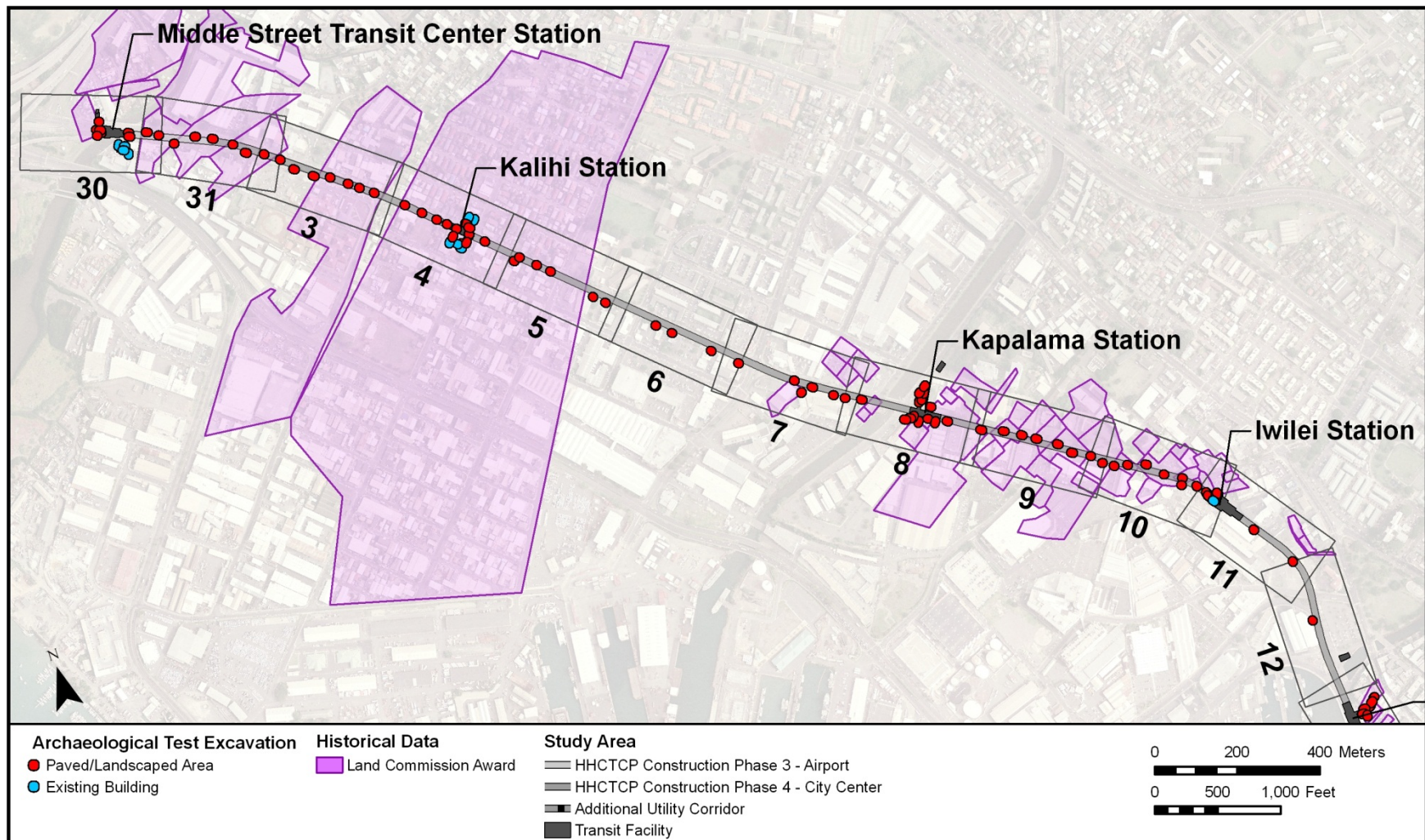


Figure 14. Proposed AISP testing locations (232 test excavations) in the western portion of the City Center Corridor (from Hammatt et al. 2011)

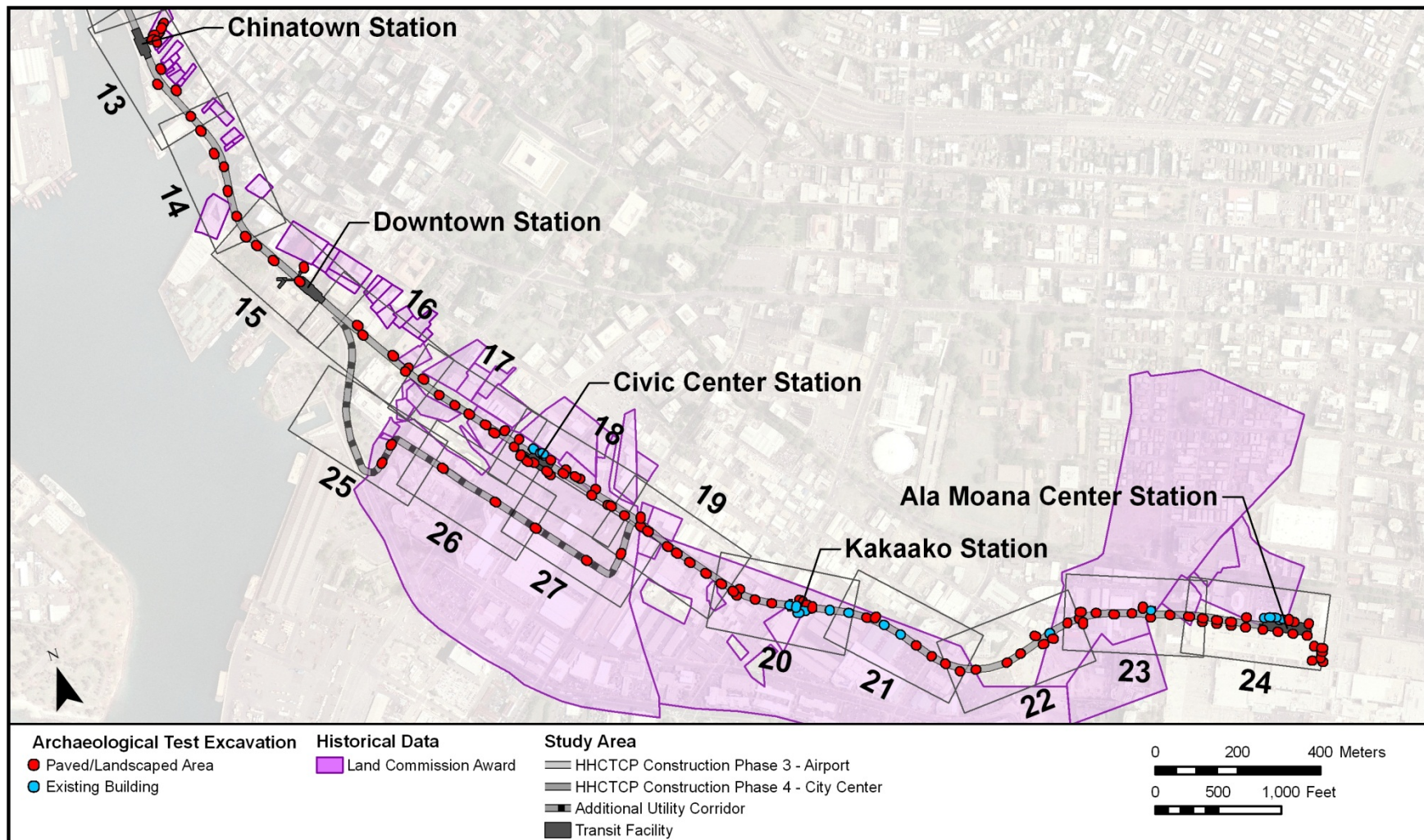


Figure 15. Proposed AISP testing locations (232 test excavations) in the eastern portion of the City Center Corridor (from Hammatt et al. 2011)

proved unfeasible, replacement locations for unfeasible excavations were proposed. The SHPD was kept abreast of unanticipated constraints and/or opportunities that arose during the AIS fieldwork. A total of nine of the 232 test excavations (3.87 percent) had to be abandoned; however, additional test excavations as well as test cores were added to document finds, increasing the total number of test excavations to 250 with seven supplementary geotechnical cores. The 250 test excavations actually conducted during the AIS are depicted on Figure 16 and Figure 17. These figures can be compared to Figure 14 and Figure 15, which depict the proposed 232 trenches from the AISP. The numbered mapping sheets on both sets of figures are the same, except that letters have been added before the map sheet number on the actual AIS test excavation figures and Sheet #s 25, 26, and 27 in the proposed AISP test excavation figures have been changed to Sheet #s P1, P2, and P3 in the actual AIS test excavation figures. These map sheet numbers are also referred to in Section 3.5, discussion of excavation sampling strategy for guideway column foundation locations and utility relocations, below. On Figure 14 and Figure 15, the red dots indicate test excavations that were planned outside in landscaped or paved areas, while the blue dots represent test excavations that were planned inside existing buildings. On Figure 16 and Figure 17, the red dots depict completed test excavations, while the black dots represent abandoned test excavations.

The initially proposed 232 specific locations for archaeological test excavations were regarded as a starting place. Finds of human skeletal remains and/or any other significant archaeological finds and/or specific types of sediments led to additional testing. Additional test excavations were undertaken within the project engineering footprint in the vicinity of areas that required additional investigation. Specific additional testing strategies were developed in consultation with the SHPD, the City, and project engineers.

Finds of human burials and disarticulated human skeletal remains in a disturbed context required close consultation with the SHPD, the OIBC, cultural descendants, and other concerned Native Hawaiian Organizations.

3.2 Kaka'ako Station Relocation

Kaka'ako Station and a portion of the HHCTCP corridor near the Kaka'ako Station were relocated based on consultation with the land owner in that area and subsequent to the approval of the City Center AISP. This station relocation was addressed in an AISP addendum (Hammatt et al. 2013), which was accepted by SHPD on March 1, 2013 (Log No. 2013.1958, Doc. No. 1302SL28).

Kaka'ako Station was moved slightly (approximately 50 m) to the northeast (*mauka*) to the Alternate A site. The alignment was changed beginning approximately 30 m (100 ft) NW ('Ewa) of Ward Avenue (on the NE or *mauka* side of Halekauwila Street) and ending 100 m (330 ft) SE (Diamond Head) of Kamake'e Street in the middle of Queen Street, where it rejoins the previously proposed alignment (Figure 18 and Figure 19). In keeping with the AISP's survey strategy, a "one-for-one" approach for test excavations was used for this slight movement northeast of the infrastructure resulting in the same number and same total area of proposed test excavations (see Figure 18 and Figure 19).

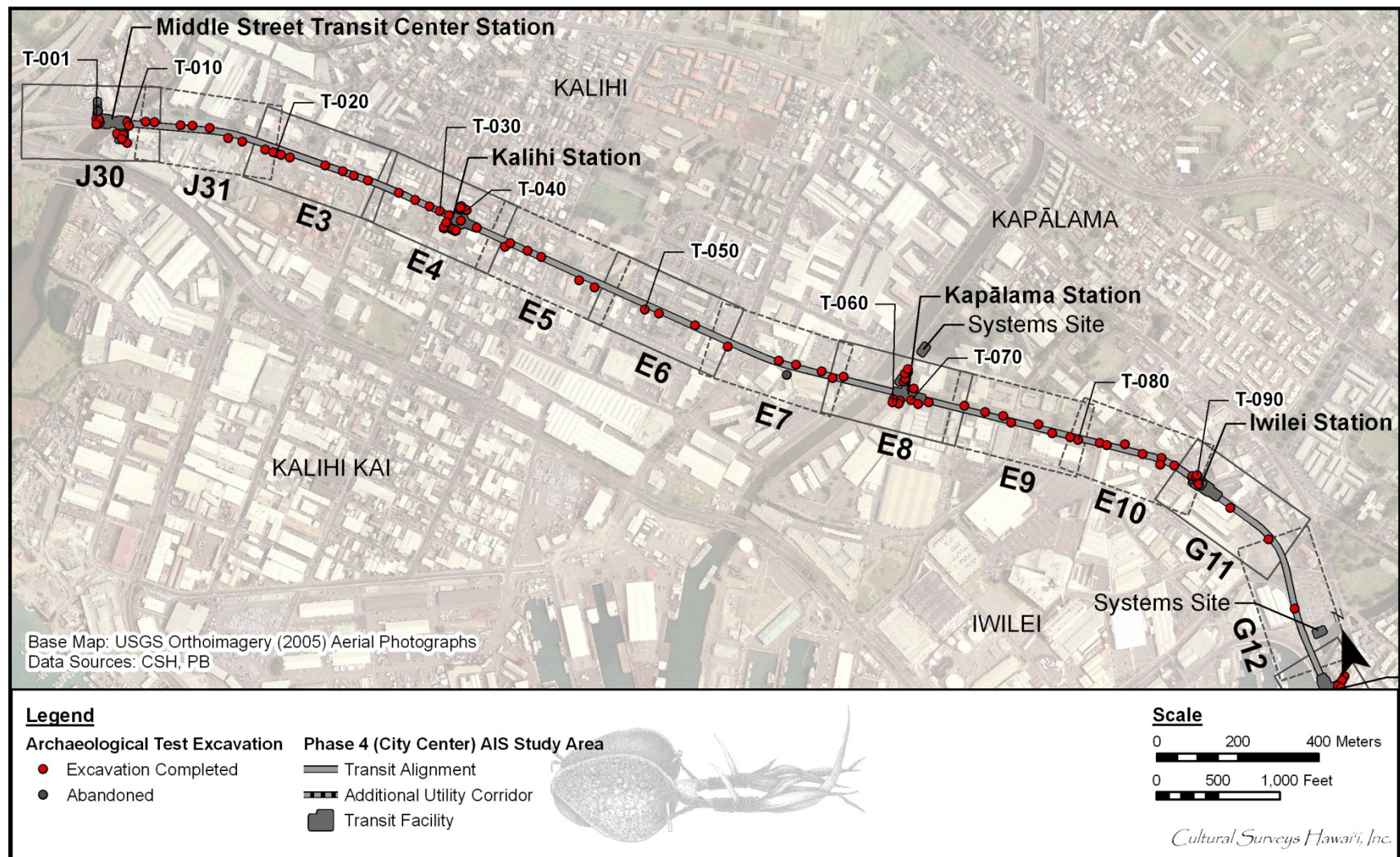


Figure 16. Actual AIS testing locations (250 test excavations) in the western portion of the City Center corridor

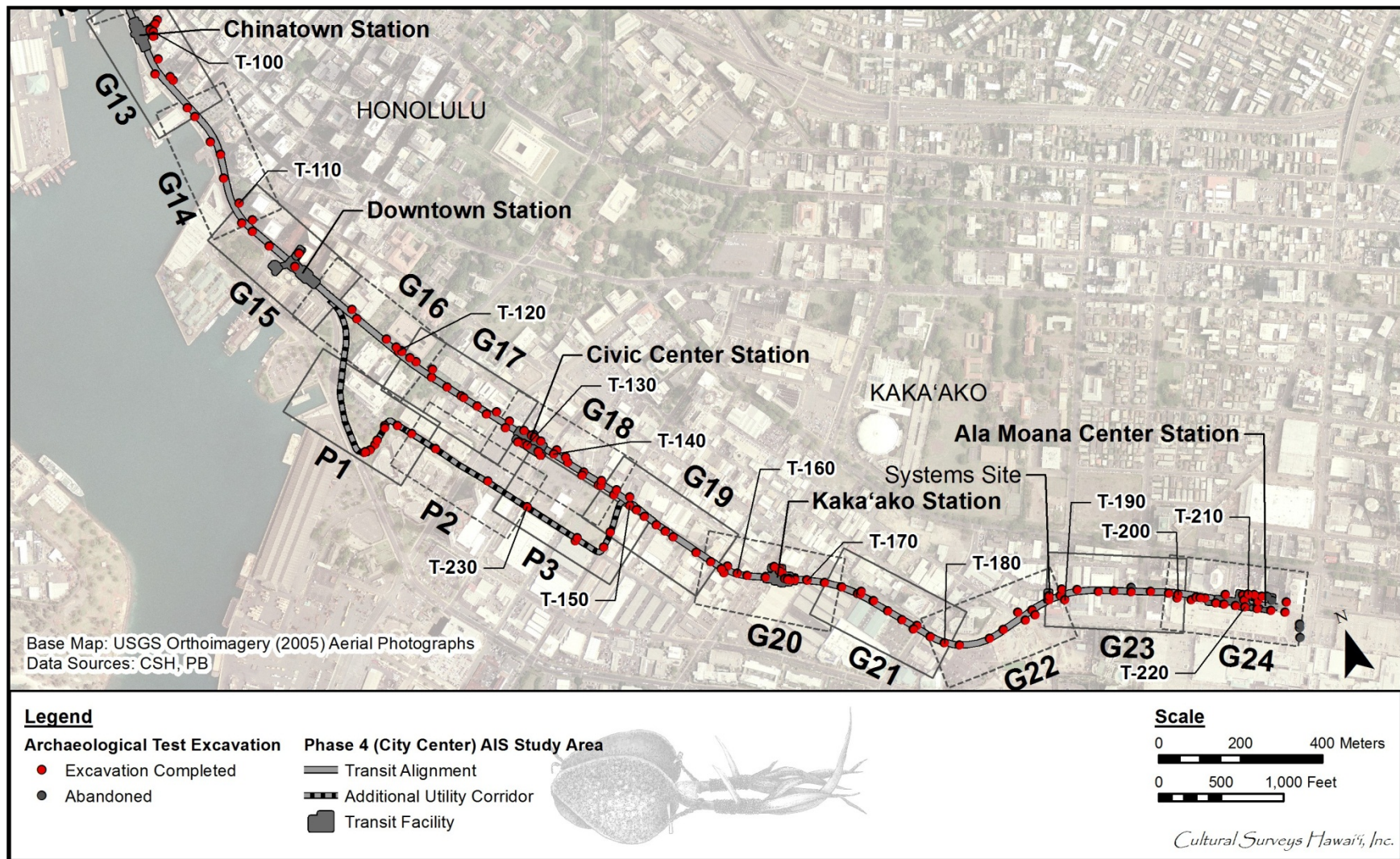


Figure 17. Actual AIS testing locations (250 test excavations) in the eastern portion of the City Center corridor

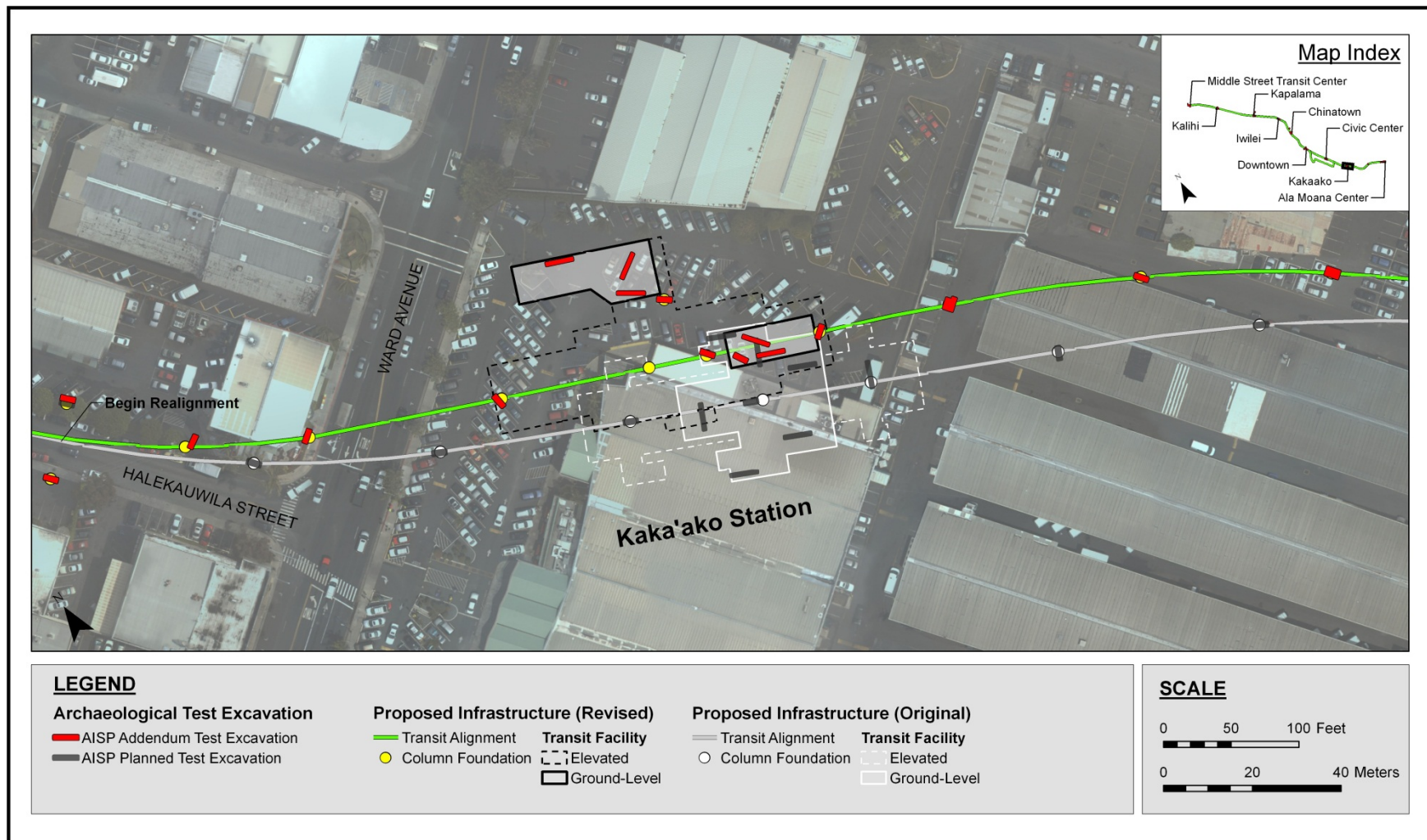


Figure 18. Aerial photograph showing relocations of Kaka'ako Station and alignment (base map: 2006 PB aerial photographs)

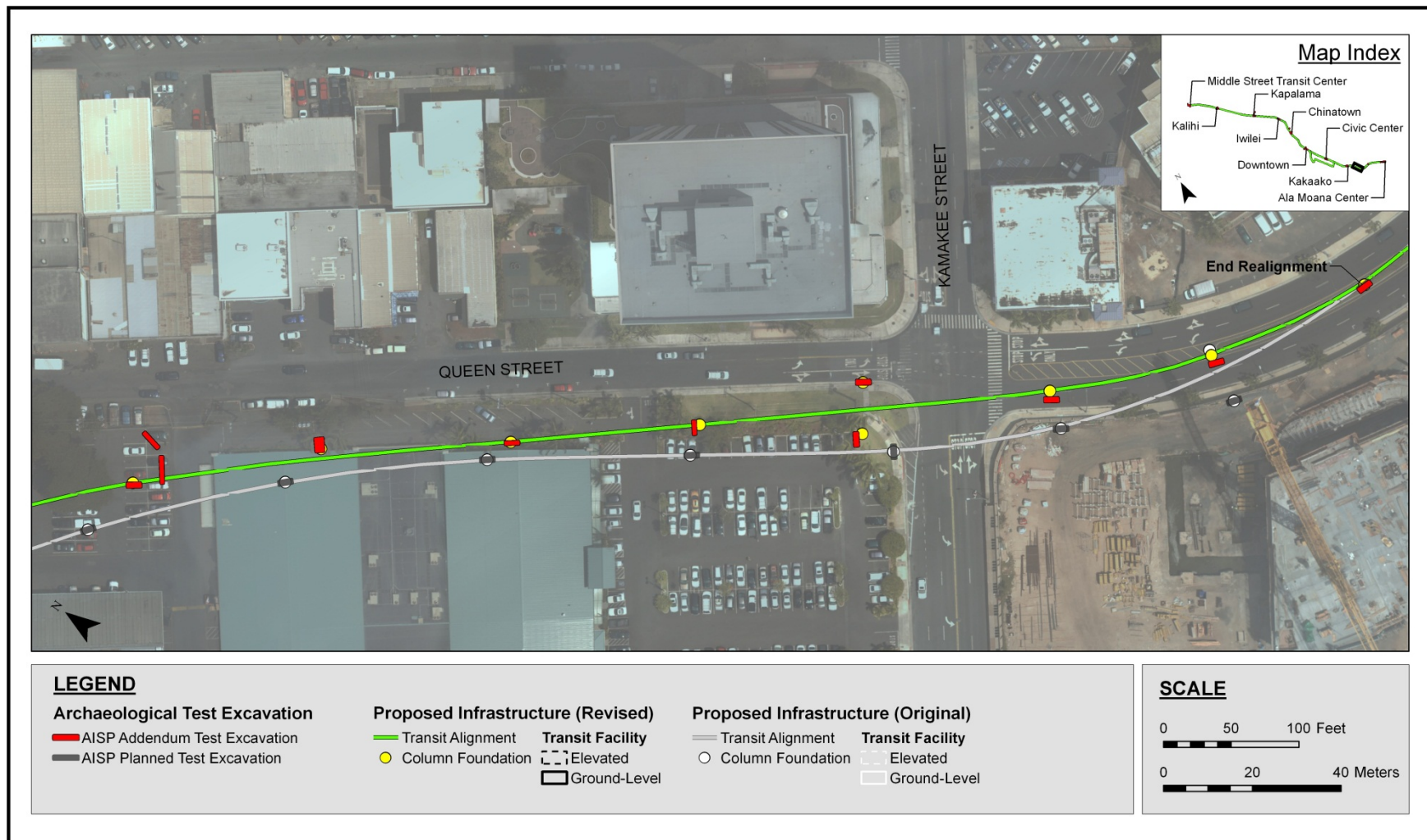


Figure 19. Aerial photograph showing transit realignment just southeast of the Kaka'ako Station (base map: 2006 PB aerial photographs)

3.3 Additional and Abandoned Testing

The overall objective of the archaeological cultural resource identification activities was to locate and document archaeological cultural resources that may be affected by project construction. Once identified, these archaeological deposits were investigated and recorded in sufficient detail so that their significance could be assessed and the project's potential effect on significant archaeological deposits could be evaluated.

The AIS investigation strove to provide information to project engineers that would allow for the avoidance of significant archaeological deposits, particularly burials, during the City Center construction. The current sampling strategy was based on preliminary engineering, and the results of the City Center AIS will help inform the interim and final engineering. There is some flexibility in the placement of the project's construction components, for example support columns can be shifted up to 30 feet parallel to the HHCTCP corridor alignment. Using this limited engineering flexibility for certain construction components and the information from the AIS, the project engineers will attempt to find a design and engineering solution whereby project construction will avoid significant archaeological deposits. Only if no solution is possible will mitigation measures, such as archaeological data recovery and burial relocation, be considered.

The AISP originally proposed 232 test excavations within the 13.87-acre City Center footprint; at the end of the AIS, 250 test excavations and seven test cores were completed. Additional testing was required to fulfill the identification and documentation objectives of the AIS and to provide project engineers with the information they need to consider design and engineering solutions that will avoid significant archaeological cultural resources. Additional testing was required at the locations of archaeological finds and in areas of no finds, but where excavation results for that area (for example the sediment types exposed) indicated more testing was warranted. The abandonment of several test excavations during the City Center AIS was also warranted. This was due to prior disturbances, station and column redesigns, and property access issues.

The survey area for the City Center AIS (and the APE) was confined to the area of direct, project-related ground disturbance. The AIS investigation was limited to that area. Discussions with Native Hawaiian individuals and groups made it clear that sediments that would not be otherwise disturbed by the project should not be disturbed by the AIS investigation. Accordingly, additional testing beyond the initial 232 trenches, where determined appropriate, would be located within the project footprint. Trenches would not be expanded outside of that footprint.

3.3.1 Decisions for Additional AIS Testing at the Location of an Archaeological Discovery

The actual number and location of additional testing locations in the vicinity of a find depended on various factors, including the type of archaeological resource found, the surrounding existing built environment, and the location—based on preliminary engineering—of project infrastructure that is planned for the location of the find. The actual number and location of additional testing locations needed was decided on a case-by-case basis based on these factors and in consultation with the City and the SHPD.

With each discovery of archaeological features and/or human skeletal remains, a series of notifications were made. In particular, project engineers were notified and consulted. In consultation with project engineers, AIS testing in the vicinity of the find was carried out to

target areas that—based on preliminary engineering—would be affected by the project (for example, the utility relocations in the vicinity or in adjacent column foundation footprints). This additional testing provided added information about the geographic extent of the find and helped to better describe the cultural resource's characteristics.

Because of the narrowness of the study area (east/west axis of the rail alignment), the focus of additional testing first determined the 'Ewa/Diamond Head extent of the subsurface deposit. Once this was established, the area may have been further tested to determine the extent of the deposit *mauka/makai* (north/south—perpendicular to the rail alignment axis).

The additional AIS testing at discoveries was an iterative process. The focus was to gather sufficient information to appropriately document the resource and to allow avoidance of the resource/discovery. Determining the geographic extent of the resource within the project footprint was a primary concern. If engineering and subsequent testing quickly determined a means of avoidance, and sufficient information had been gathered to assess significance and project effect, then AIS testing at that location was complete. If avoidance became more difficult based on project engineering, existing built environment constraints, and the results of additional testing, continued AIS testing became necessary to find an appropriate design and engineering solution. Decisions had to be made on a case-by-case basis. Project design/engineering constraints and flexibility at each location played a large part in the decision-making process. SHPD and City input was part of the process.

During implementation of the AIS fieldwork, the following procedures were followed so that informed decisions could be made regarding additional testing in the vicinity of finds:

- A. Completed trenches outlined in the discussion of the sampling strategy for general geographic areas. This provided at least broad-brush information regarding archaeological cultural resource locations for that geographic area.
- B. When archaeological resources were discovered, provided description and location information to PB/HART planning and engineering team and the SHPD.
- C. For discoveries of iwi kūpuna, notified appropriate parties (e.g., the SHPD, the OIBC, NHOs, lineal and cultural descendants) following the burial consultation protocol.
- D. For the location of a find, consulted GIS layers of existing utilities and the proposed project build out for that location based on preliminary engineering.
- E. Consulted project engineers about testing options and the flexibility of project design/engineering for that location.
- F. Consulted with the SHPD and asked for its input regarding additional testing options.
- G. Designed additional testing strategy in the vicinity of the find, focusing on areas that would be affected by project construction (e.g., a replacement column location), including potential areas for project redesign to avoid the find.

- H. Notified project engineers to obtain any additional permits and/or traffic control that was needed for the additional testing.
- I. Conducted additional testing.
- J. Worked with project engineers, compared testing results to preliminary engineering in that area to see if there was a design/engineering solution to avoid the find.
- K. Evaluated whether there was sufficient information to describe and assess the significance, and determine the project's effect on the find.
- L. If a design/engineering solution was not found to avoid the find and/or there was need for additional testing to document the find and assess its significance, repeated consultation steps above with GIS, engineers, and the SHPD.
- M. Designed and implemented additional testing and reevaluated results in terms of a potential design or engineering solution to avoid the find.
- N. Ensured sufficient information was available to evaluate the archaeological cultural resource's significance and the project's effect on that resource.
- O. If no design/engineering solution was available to avoid find, considered appropriate mitigation options, for example, burial relocation or data recovery.

The description and location information of a find was disseminated quickly to the SHPD, consulting parties, and project engineers. The additional AIS testing did not need to follow immediately after the discovery and initial documentation of a find. There was time to consult and make considered decisions regarding additional AIS testing in the vicinity of finds.

3.3.2 Decisions for Additional AIS Testing at Other Areas

The need for additional AIS testing was not limited to areas where the proposed sampling strategy documented archaeological cultural resources. Additional testing also occurred in areas of no finds, but where excavation results (e.g., sediment types) indicated more testing was needed as part of the AIS identification effort.

The actual number and location of additional testing locations in these “no find” areas was decided on a case-by-case basis determined by several factors including the surrounding built environment; the anticipated locations of project-related infrastructure; and the potential for encountering significant deposits (e.g., a thick sand deposit). The additional testing was designed and carried out in consultation with project engineers, the City, and the SHPD. Archaeological cultural resources found during additional AIS testing also followed the procedures outlined above.

3.3.3 Additional Testing Performed

Twenty-seven test excavations (Table 2) and seven geotechnical cores (Table 3) were added during the course of the City Center AIS. The additional test excavations served to further investigate archaeological resources, to relocate specific project elements away from sensitive cultural resources, and to enhance archaeological coverage in areas where sediment types

indicated significant archaeological deposits might occur. The locations of these 27 additional test excavations are shown in Sections 3.4 and 3.5 and their additional investigative purposes are summarized below.

Table 2. Description of Additional Test Excavations

| Test Excavation | Excavation Type | Street | Area ft ² |
|-------------------------|---|--------------------|----------------------|
| 020A | Utility Relocation (6" Gas) | Kamehameha Highway | 40 |
| 104A | Utility Relocation (Fiber Optic Line) | Nimitz Highway | 40 |
| 111A | Utility Relocation (Electrical Line) | Nimitz Highway | 40 |
| 119A | Utility Relocation (Electrical Line) | Halekauwila Street | 30 |
| 120A | Utility Relocation (Electrical Line) | Halekauwila Street | 40 |
| 120B | Utility Relocation (Electrical Line) | Halekauwila Street | 30 |
| 122A | Utility Relocation (Electrical Line) | Halekauwila Street | 30 |
| 146A | Guideway Column | Halekauwila Street | 30 |
| 148A | Guideway Column | Halekauwila Street | 24 |
| 151A | Utility Relocation (8" Sewer) | Halekauwila Street | 40 |
| 168A | Station Building | Ward Avenue | 30 |
| 168B | Station Building | Ward Avenue | 40 |
| 170A | Guideway Column | Ward Avenue | 32 |
| 172A | Guideway Column | Queen Street | 30 |
| 174A | Utility Relocation (Electrical Line) | Queen Street | 30 |
| 175A | Guideway Column | Queen Street | 30 |
| 178A | Guideway Column | Kamake'e Street | 30 |
| 202A | Utility Relocation (24" Storm Drain) | Kona Street | 40 |
| 226A | Utility Relocation (Electrical Line) | Punchbowl Street | 40 |
| 226B | Utility Relocation (Electrical Manhole) | Punchbowl Street | 40 |
| 226C | Utility Relocation (Electrical Manhole) | Punchbowl Street | 40 |
| 226D | Utility Relocation (Electrical Manhole) | Punchbowl Street | 40 |
| 227A | Utility Relocation (Electrical Manhole) | Punchbowl Street | 40 |
| 227B | Utility Relocation (Electrical Manhole) | Punchbowl Street | 40 |
| 228A | Utility Relocation (Electrical line) | Pohukaina Street | 40 |
| 231A | Utility Relocation (Electrical Manhole) | Pohukaina Street | 40 |
| 232A | Utility Relocation (Electrical Line) | Cooke Street | 40 |
| Total Area Added | | | 966 |

T-020A was added to further investigate an *imu* feature (SIHP #50-80-14-7425) discovered in T-020. It also investigated a utility relocation.

T-104A was added to further investigate the natural land surface/coral shelf in the area. The adjacent T-104 could not be entered due to safety concerns and, therefore, it was never determined if the base of excavation was at the coral shelf or just a coral boulder concentration. T-104A also investigated a utility relocation.

T-111A was added to further investigate the “Honolulu Fort” area, since nearby T-111 and T-112 did not encounter any deposits associated with this historically-documented landmark and because T-111 had to be terminated early due to safety concerns. T-111A also investigated a utility relocation.

T-119A was added to further investigate and delineate the boundaries of the basalt stone and mortar wall found within adjacent T-119 to the northwest and designated part of SIHP #50-80-14-70428. T-119A also investigated a utility relocation.

T-120A was added to further investigate and delineate the boundaries of the feature concentration found within T-120, approximately 5 m to the northeast, and designated part of SIHP #50-80-14-7428. T-120A also investigated a utility relocation.

T-120B was added to further delineate the boundaries of the feature concentration found within T-120 and T-120A, approximately 30 m and 40 m (respectively) to the northwest, and designated part of SIHP #50-80-14-7428. T-120B also investigated a utility relocation.

T-122A was added to further investigate a wetland deposit (part of SIHP #50-80-14-2963) located in T-122. T-122A also investigated a utility relocation.

T-146A was added because T-146 encountered a subsurface concrete jacket and could not be completely excavated. T-146A further investigated and delineated the boundaries of SIHP #50-80-14-5820 as well as a guideway column location.

T-148A was added because T-148 encountered a subsurface concrete jacket and could not be completely excavated. T-148A further investigated and delineated the boundaries of SIHP #50-80-14-5820 as well as a guideway column location.

T-151A was added to further investigate features associated with SIHP #50-80-14-5820. This test excavation also investigated a utility relocation.

T-168A was added to further investigate and delineate the boundaries of SIHP #50-80-14-7429. This test excavation also investigated a portion of the station building.

T-168B was added to further investigate and delineate the boundaries of SIHP #50-80-14-7429. This test excavation also investigated a portion of the station building.

T-170A was added to increase testing coverage related to the redesign and slight relocation of the guideway column tested by T-170. T-170A also further investigated cultural material associated with SIHP #50-80-14-7429 in T-170.

T-172A was added to further investigate natural sand/land surfaces documented in T-172. This test excavation also investigated a guideway column location.

T-174A was added to increase testing coverage related to utility relocation and to further investigate natural sand/land surfaces documented in T-174.

T-175A was added to further investigate natural sand/land surfaces documented in T-175. This test excavation also investigated a guideway column location.

T-178A was added to further investigate natural sand/land surfaces for the immediate area. This test excavation also investigated a guideway column location.

T-202A was added to further investigate the vicinity of a historic privy located in T-202 and designated SIHP #50-80-14-7430.

T-226A was added because T-226 encountered a 12-inch waterline and could not be fully excavated. T-226A further investigated subsurface cultural deposits, designated SIHP #50-80-14-2918, identified in T-226B, T-226C, T-226D, T-227, and T-227A.

T-226B was added to increase testing coverage area due to utility relocation and to further investigate subsurface cultural deposits, designated SIHP #50-80-14-2918, identified in T-226A, T-226C, T-226D, T-227, and T-227A.

T-226C was added to increase testing coverage area due to utility relocation and to further investigate subsurface cultural deposits, designated SIHP #50-80-14-2918, identified in T-226A, T-226B, T-226D, T-227, and T-227A.

T-226D was added to increase testing coverage related to utility relocation due to redesign to avoid human skeletal remains located in T-226C and to further investigate subsurface cultural deposits designated SIHP #50-80-14-2918, identified in T-226A, T-226B, T-226C, T-227, and T-227A.

T-227A was added to further investigate subsurface cultural deposits, designated SIHP #50-80-14-2918, identified in T-226A, T-226B, T-226C, T-226D, and T-227. This test excavation also investigated a utility relocation.

T-227B was added to further investigate subsurface cultural deposits, designated SIHP #50-80-14-2918, identified in T-226A, T-226B, T-226C, T-226D, T-227, and T-227A. This test excavation also investigated a utility relocation.

T-228A was added to further investigate natural sand/land surfaces in the immediate area of T-228. This test excavation also investigated a utility relocation.

T-231A was added to further investigate the vicinity of T-231 which was abandoned due to a utility line. This test excavation also investigated a utility relocation.

T-232A was added to further investigate subsurface cultural deposits, designated a component of SIHP #50-80-14-7189, and sand deposits observed in T-232. This test excavation also investigated a utility relocation.

Of the seven supplemental cores (Table 3), six (Cores 098-1, 098-2, 099-1, 099-2, 101-1, and 101-2) were tested within the Chinatown Station footprint. They were drilled to obtain sediment core samples for comparison with the sediment samples collected from the nearby trench excavations dug to the coral shelf (T-096 and T-097) or to the water table (T-100). The core sampling was conducted to determine whether any A-horizon/culturally-modified sediments, natural organic peaty sediments, and/or estuary sediments could accurately be identified through coring and, if so, if coring might be a viable alternative to trenching in areas affected by safety issues. Core 124A tested both for a planned utility relocation, and the presence of sand deposits and, therefore, the possibility of subsurface cultural deposits. The locations of the geotechnical cores are illustrated in Section 4.3.

Table 3. Description of Supplemental Geotechnical Cores

| ID # | Excavation Type | Street |
|-------|-------------------------------|---------------------------------|
| 098-1 | Station Building | N Nimitz Hwy. and Kekaulike St. |
| 098-2 | Station Building | N Nimitz Hwy. and Kekaulike St. |
| 099-1 | Station Building | N Nimitz Hwy. and Kekaulike St. |
| 099-2 | Station Building | N Nimitz Hwy. and Kekaulike St. |
| 101-1 | Station Building | N Nimitz Hwy. and Kekaulike St. |
| 101-2 | Station Building | N Nimitz Hwy. and Kekaulike St. |
| 124A | Utility Relocation (8" Water) | Halekauwila St. |

3.3.4 Abandoned Testing

Nine test excavations were abandoned during AIS testing due to prior disturbances, station and/or column redesigns, and/or property access issues (Table 4). Of these, T-003 and T-055 were abandoned due to prior disturbance. T-003 was intended to test a column location. The proposed column location however, straddles an existing fence line at a location where existing retaining walls and footings extend below grade. T-055 was placed to test a proposed utility relocation adjacent to a newly-constructed grease trap; CSH observed the excavation and installation of the grease trap. T-135, T-197, T-223, T-224, and T-225 were abandoned due to column and/or station redesigns. T-135 was located to test a proposed station touchdown point based on an earlier station design. Modular redesign and shortening of the straddle-bent foundations allowed for a reduction in the area of disturbance. T-136 was expanded to provide additional investigation coverage in the area. T-197 was planned to test a proposed column location based on a prior design that employed a straddle-bent column, however an alternative design consisting of a center pier was chosen. T-223, T-224, and T-225 were abandoned due to the redesign of Ala Moana Station. The station was redesigned to eliminate the need for touchdown/connectivity to the shopping center in the vicinity of the originally proposed trench locations. In consultation with SHPD, and based on the lack of observed archaeological deposits in neighboring test excavations, T-215 and T-216 were abandoned because the private property owner refused to allow access.

Table 4. Description of Abandoned Test Excavations

| Test Excavation | Excavation Type | Street | Area (ft ²) |
|-----------------------------|--------------------------------------|----------------------|-------------------------|
| T-003 | Station Column—prior disturbance | Kamehameha Highway | 30 |
| T-055 | Utility Relocation—prior disturbance | Dillingham Boulevard | 30 |
| T-135 | Station Building—design change | Halekauwila Street | 40 |
| T-197 | Guideway Column—design change | Kona Street | 30 |
| T-215 | Station Building—access denied | Kona Street | 40 |
| T-216 | Station Column—access denied | Kona Street | 30 |
| T-223 | Station Building—design change | Kona Street | 40 |
| T-224 | Station Building—design change | Kona Street | 40 |
| T-225 | Station Platform—design change | Kona Street | 30 |
| Total Area Abandoned | | | 310 |

3.4 Excavation Sampling Strategy—Stations

This AIS addresses sampling at nine proposed stations. Subsurface testing occurred following the pedestrian survey of the study area and the GPR survey of the specific testing areas. Additional testing was considered in areas near any test excavation where archaeological cultural resources were identified or where testing results indicated the likelihood of archaeological cultural resources. The extent of additional testing was made in consultation with the SHPD. The testing strategy at the nine transit stations is described in Table 5.

Figures depicting the testing strategy and photographs showing general location overviews of each transit station are provided below (Figure 20 through Figure 84). The figures not only depict the locations of test excavations, but provide insight into how the test excavation locations were chosen—for example, they show the specific project component or feature that is tested by each test excavation. For the transit stations, test excavation locations were chosen to provide sampling across the station footprint, with particular interest in areas of deeper, subsurface excavations—such as areas of elevator shafts. Stations and station components in areas of previous subsurface work and areas located seaward of the former shoreline (which would contain only fill materials—such as at the Downtown Station) had much fewer test excavations. In these figures, the original AISP proposed testing locations are shown in blue, while the actual excavated trenches are shown in red, and abandoned test excavations are shown in black. For most station locations, the actual footprint of the station touchdowns (the areas where otherwise elevated stations meet the ground, such as the entrance ways) were redesigned and contracted (i.e., the station touchdowns were made smaller) subsequent to the approval of the City Center AISP. The redesigned station layouts were provided to CSH and the station test excavations were adjusted to match the redesigned station footprints. In almost all cases the number of proposed station test excavations remained the same, only the distribution within the redesigned station touchdown changed. This is apparent in examining the various station touchdown footprint figures, where the AISP proposed test excavation locations in blue are shown outside the current station touchdown footprint of many of the newly-designed (and contracted) stations. If the number of blue AISP proposed test excavations is less than indicated on Table 5, this is because the red actual test excavations share the same footprint, and the red actual test excavations covers the AISP proposed test excavations.

Table 5. Sampling Strategy at Transit Station and Ancillary Facility Locations

| Location | Proposed AISP Subsurface Testing | Actual AIS Subsurface Testing |
|--------------------------------------|--|--|
| Middle Street Transit Center Station | <p>Test four 2' by 20' excavations and two 3' by 10' excavations at station column foundations;</p> <p>One 2' by 20' off-set test excavation at a nearby <i>makai</i> sewer relocation;</p> <p>Four 2' by 20' test excavations at (<i>makai</i>) Station Ancillary Building;</p> <p>No test excavations at (<i>mauka</i>) Station Entrance Building due to prior soil remediation work that completely removed the former sediments of this area</p> | <p>Tested three 2' by 20' excavations (T-001, T-005, and T-009) and two 3' by 10' excavations (T-002 and T-004) at station column foundations (T-004 was reduced to a 3' by 10' excavation due to utility conflicts and T-003, a 3' by 10' excavation, was abandoned due to conflicts with existing infrastructure);</p> <p>One off-set test excavation (T-010; reduced to a 3' by 10' excavation due to utility conflicts) at a nearby <i>makai</i> sewer relocation;</p> <p>Four 2' by 20' test excavations (T-006, T-007, T-008, and T-011) at (<i>makai</i>) Station Ancillary Building;</p> <p>No test excavations at (<i>mauka</i>) Station Entrance Building due to prior soil remediation work that completely removed the former sediments of this area</p> |
| Kalihi Station | <p>Test three out of three station column foundations with 3' by 10' excavations;</p> <p>Four 2' by 20' test excavations at (<i>mauka</i>) Station Entrance Building;</p> <p>Six 2' by 20' test excavations at (<i>makai</i>) Station Entrance Building</p> | <p>Tested three out of three station column foundations with 3' by 10' excavations (T-033, T-041, T-043; one column location has since been moved);</p> <p>Four 3' by 10' test excavations (T-034, T-036, T-037, and T-040) at (<i>mauka</i>) Station Entrance Building (all test excavations readjusted due to station redesign);</p> <p>Five 2' by 20' (T-032, T-035, T-038, T-039, and T-042) and one 3' by 10' (T-031) test excavations at (<i>makai</i>) Station Entrance Building (all test excavations readjusted due to station redesign)</p> |

| Location | Proposed AISP Subsurface Testing | Actual AIS Subsurface Testing |
|-------------------|---|--|
| Kapālama Station | <p>No testing of three station column foundations due to utility constraints; Test one 3' by 10' off-set test excavation at a <i>makai</i> storm drain catch basin; Five 2' by 20' test excavations at (<i>mauka</i>) Station Entrance Building and one 2' by 20' test excavation at small <i>mauka</i> touchdown; Four 2' by 20' test excavations at (<i>makai</i>) Station Entrance Building and one 2' by 20' test excavation at small <i>makai</i> touchdown</p> | <p>No testing of three station column foundations due to utility constraints; Tested one 3' by 10' off-set test excavation (T-070) at a <i>makai</i> storm drain catch basin; Five 2' by 20' test excavations (T-062, T-064, T-065, T-066, and T-067) at (<i>mauka</i>) Station Entrance Building (all test excavations readjusted due to station redesign) and one 2' by 20' test excavation (T-069) at small <i>mauka</i> touchdown; Four 2' by 20' test excavations (T-060, T-061, T-063, and T-068) at (<i>makai</i>) Station Entrance Building and one 3' by 10' test excavation (T-071) at small <i>makai</i> touchdown (all test excavations readjusted due to station redesign)</p> |
| Iwilei Station | <p>No testing of seven station column foundations due to their location in a former fishpond and constraints; Four 2' by 20' test excavations at Station Entrance Building</p> | <p>All test excavations readjusted due to station redesign: One 3' by 10' test excavation (T-088) at a station column foundation; Three 2' by 20' test excavations (T-089, T-090, and T-091) at Station Entrance Building; One 2' by 20' test excavation (T-092) at Station Ancillary Building</p> |
| Chinatown Station | <p>No testing of four station column foundations due to their location seaward of the former shoreline and constraints; Three 4' by 20' test excavations at (<i>mauka</i>) Station Entrance Building; One 4' by 20' test excavations and two 2' by 20' test excavations at (<i>mauka</i>) Station Ancillary Building; No testing at (<i>makai</i>) HECO transformer due to its being located seaward of the former shoreline and constraints</p> | <p>No testing of four station column foundations due to their location seaward of the former shoreline and constraints; Three 4' by 20' test excavations (T-099, T-100, and T-101) at (<i>mauka</i>) Station Entrance Building (all test excavations readjusted due to station redesign); One 4' by 20' test excavation (T-097) and two 2' by 20' test excavations (T-096 and T-098) at (<i>mauka</i>) Station Ancillary Building</p> |

| Location | Proposed AISP Subsurface Testing | Actual AIS Subsurface Testing |
|----------------------|--|---|
| | | <p>(all test excavations readjusted due to station redesign);</p> <p>Six geotechnical test bores (C-1 through C-6) at (<i>mauka</i>) Station Entrance Building and (<i>mauka</i>); Station Ancillary Building.</p> <p>No testing at (<i>makai</i>) HECO transformer due to its being located seaward of the former shoreline and constraints</p> |
| Downtown Station | <p>Test only two of 14 station column foundations with a single 2' by 20' test excavation in consideration of their being located seaward of the former shoreline and constraints;</p> <p>Only one 2' by 20' test excavation at (<i>mauka</i>) Station Entrance Building due to its being located seaward of the former shoreline and constraints;</p> <p>No testing at (<i>makai</i>) Station Entrance Building due to its location seaward of the former shoreline and constraints</p> | <p>Tested only two of 14 station column foundations with a single 2' by 20' test excavation (T-115) in consideration of their being located seaward of the former shoreline and constraints;</p> <p>Only one reduced (due to utility conflicts) 3' by 10' test excavation (T-114) at (<i>mauka</i>) Station Entrance Building due to its being located seaward of the former shoreline and constraints;</p> <p>No testing at (<i>makai</i>) Station Entrance Building due to its location seaward of the former shoreline and constraints</p> |
| Civic Center Station | <p>Test only four out of eight station column foundations with 3' by 10' test excavations due to constraints;</p> <p>Five 2' by 20' test excavations at (<i>makai</i>) Station Entrance Building to supplement 3½ previous test excavations within building footprint;</p> <p>One 3' by 10' test excavation at <i>mauka</i> elevator</p> | <p>All test excavations readjusted due to station redesign:</p> <p>Tested only four out of eight station column foundations with three 3' by 10' test excavations (T-131, T-134, T-137) and one 2' by 20' test excavation (T-136) due to constraints;</p> <p>Two 2' by 20' test excavations (T-132 and T-133) at (<i>makai</i>) Station Entrance Building to supplement 3½ previous test excavations within building footprint;</p> <p>Three 2' by 20' test excavations (T-130, T-138, and T-139) at (<i>makai</i>) Station Ancillary Building to supplement 3½ previous test</p> |

| Location | Proposed AISP Subsurface Testing | Actual AIS Subsurface Testing |
|--------------------------|---|--|
| | | excavations within building footprint; One 2' by 20' test excavation (T-135) at <i>mauka</i> elevator was abandoned due to station redesign |
| Kaka'ako Station | Test three out of three station column foundations with two 3' by 10' test excavations and one 2' by 20' test excavation; Six 2' by 20' test excavations at Station Entrance Building | All test excavations readjusted due to station redesign (refer to discussion of Kaka'ako Station redesign in this Volume, Section 3.2): Tested four out of five station column foundations with four 3' by 10' test excavations (T-162, T-166, T-167, and T-169); Three 2' by 20' test excavations (T-163, T-164, and T-165) at Station Entrance Building; Two 2' by 20' test excavations (T-168 and T-168B) and one 3' by 10' test excavation (T-168A) at Station Ancillary Building |
| Ala Moana Center Station | Test eight out of eight station column foundations (with 3' by 10' excavations); Four 2' by 20' test excavations at (<i>mauka</i>) Station Ancillary Building; Three 2' by 20' and three 3' by 10' test excavations at (<i>makai</i>) Station Entrance Building | All test excavations readjusted due to station redesign: Tested nine station column foundations with 3' by 10' test excavations (T-205, T-206, T-207, T-208, T-212, T-213, T-217, T-218, T-219, and T-220); One 2' by 20' test excavation (T-214) at (<i>mauka</i>) Station Ancillary Building (one 2' by 20' test excavation [T-215 and T-216] was abandoned); Two 2' by 20' test excavations (T-210 and T-211) and one 3' by 10' test excavation (T-209) at (<i>makai</i>) Station Entrance Building; Three 2' by 20' test excavations (T-204, T-221, and T-222) for utility relocations |

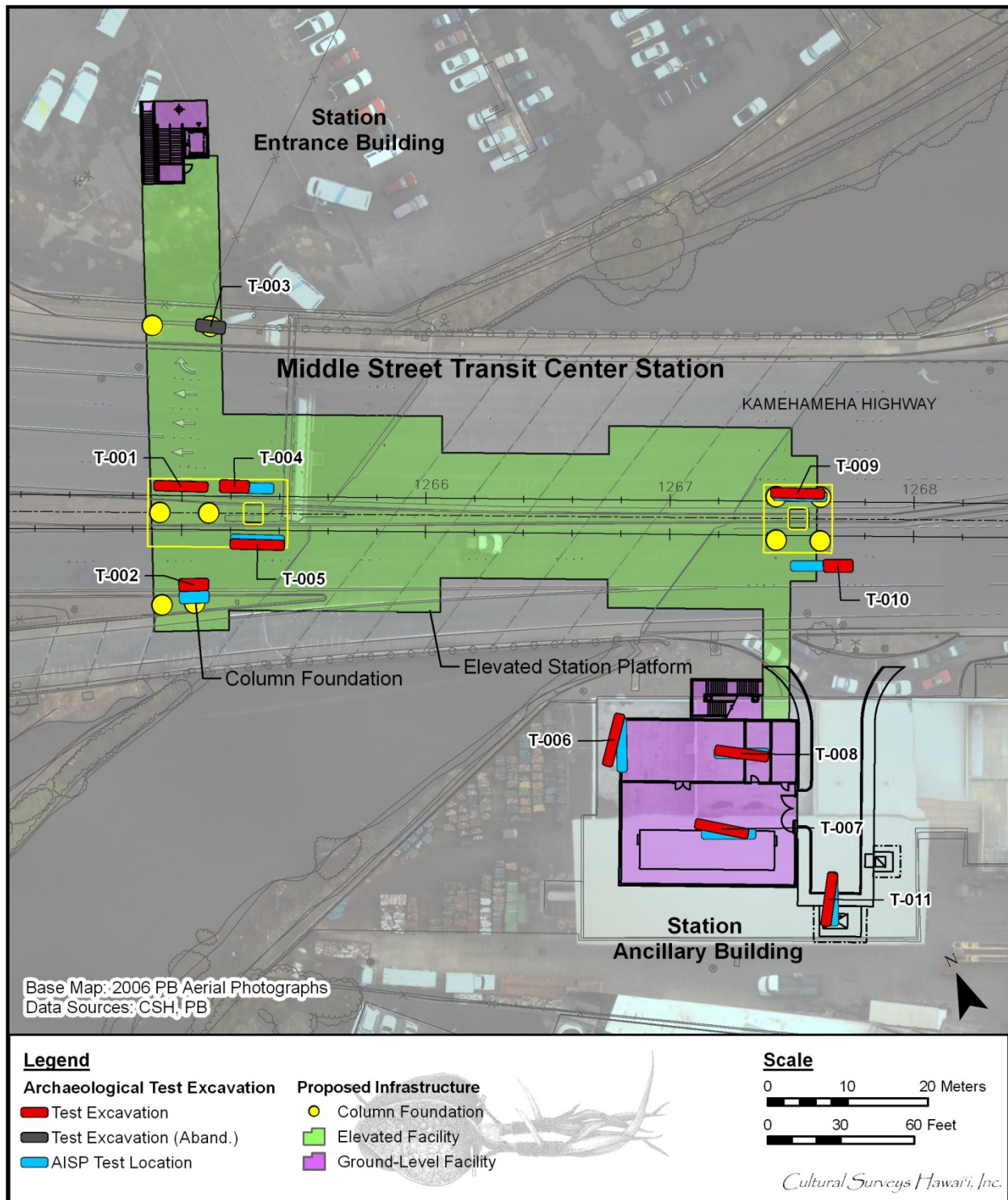


Figure 20. Middle Street Transit Center Station (Kamehameha Highway just east of Middle Street), aerial photograph showing overlay of transit center infrastructure (see following figures for details) and locations of proposed AISP and actual AIS test excavations



Figure 21. General view of Middle Street Transit Center Station, *mauka* Station Entrance Building location (subject of recent soil remediation work), view to north



Figure 22. General view of Middle Street Transit Center Station, western column foundations at Kamehameha Highway (Kalihi Stream in background at left), view to southwest



Figure 23. General view of Middle Street Transit Center Station, Station Ancillary Building location (present Gaspro buildings), view to southwest



Figure 24. General view of Middle Street Transit Center Station, eastern column foundations in median of Kamehameha Highway, view to southwest

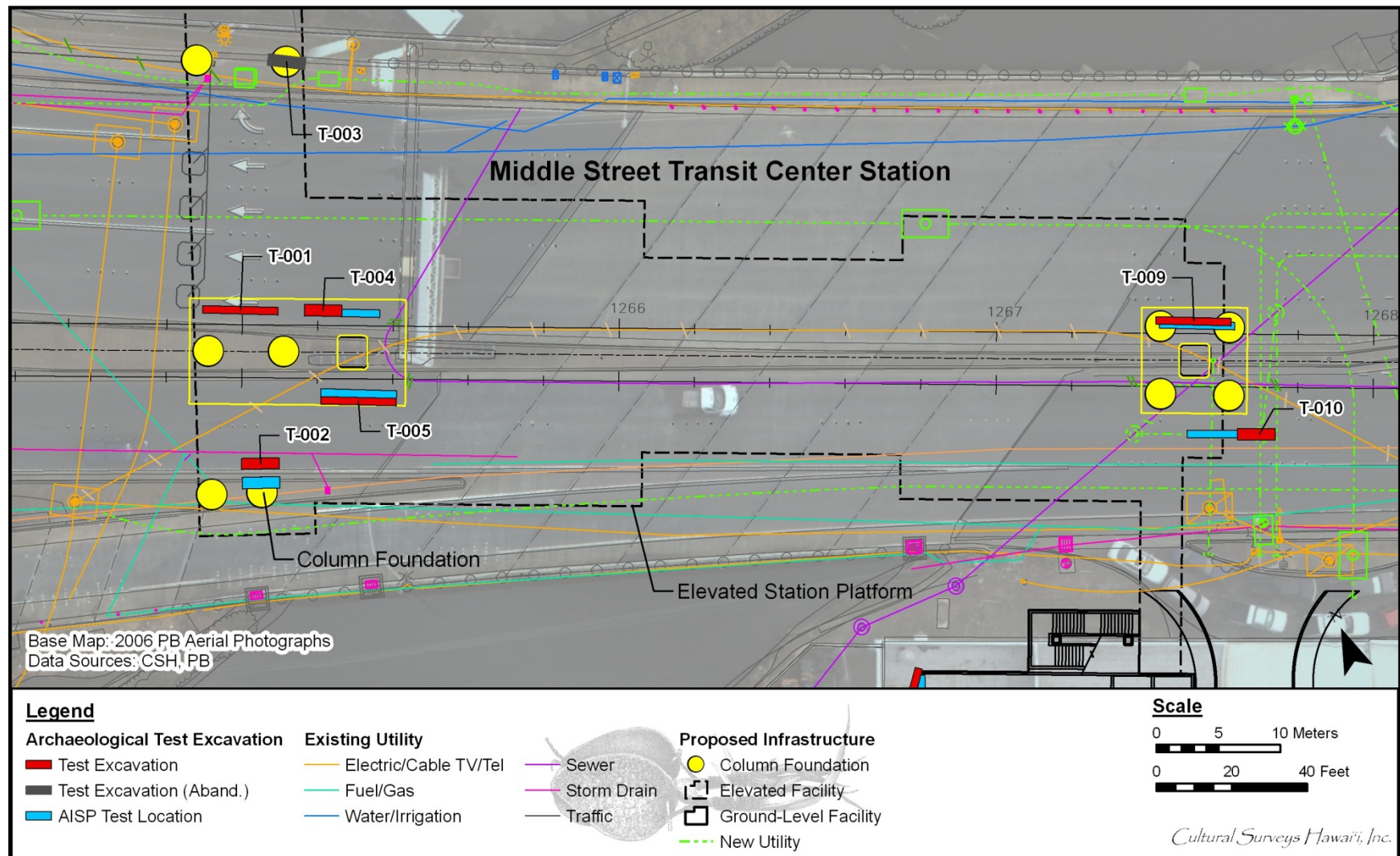


Figure 25. Middle Street Transit Center Station, detail of column foundation layout at Kamehameha Highway, showing locations of proposed AISP and actual AIS test excavations

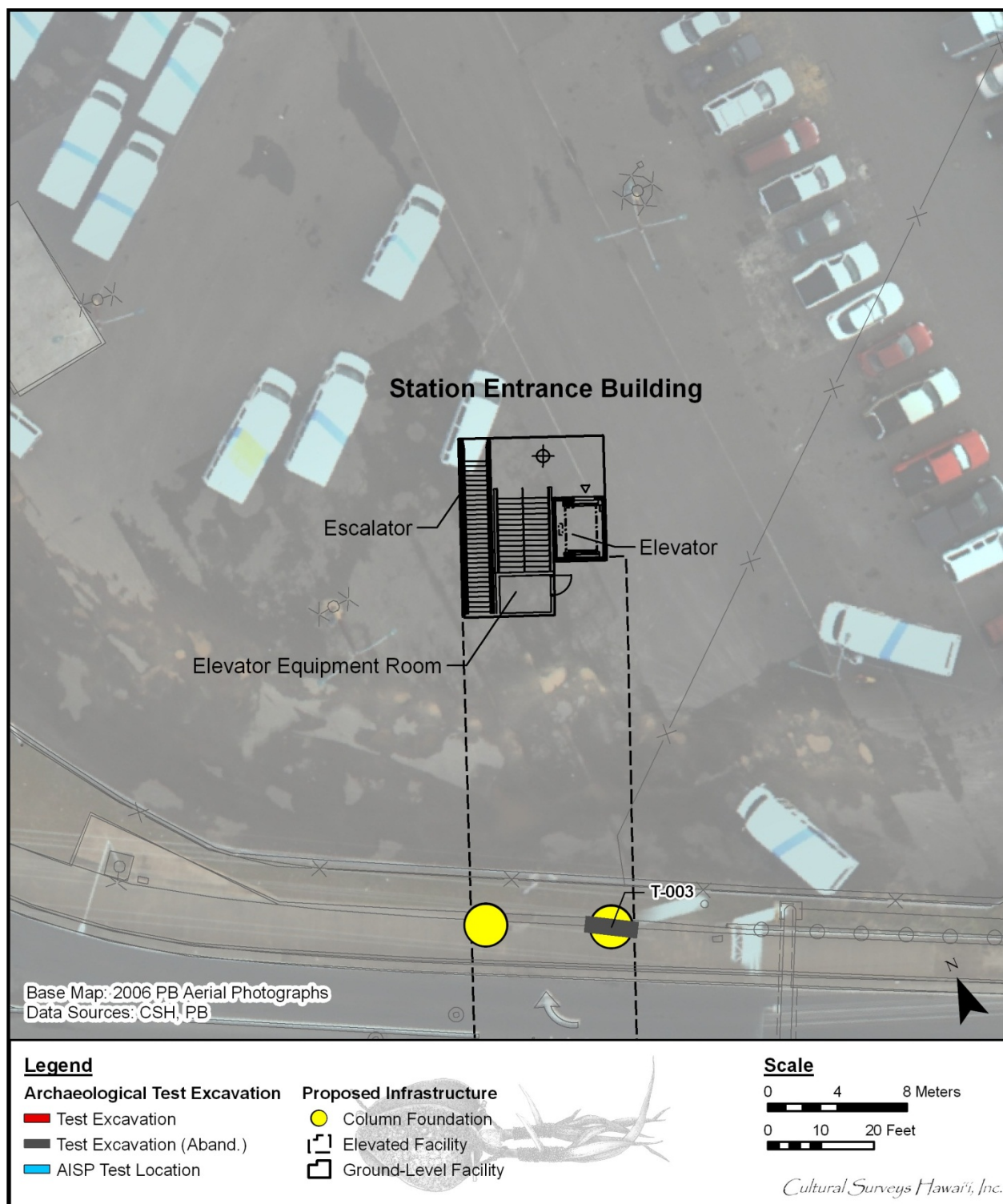


Figure 26. Middle Street Transit Center Station, detail of *mauka* Station Entrance Building (no test trenches at *mauka* Station Entrance Building due to prior soil remediation work); also note T-003, a test excavation at a column foundation that was abandoned

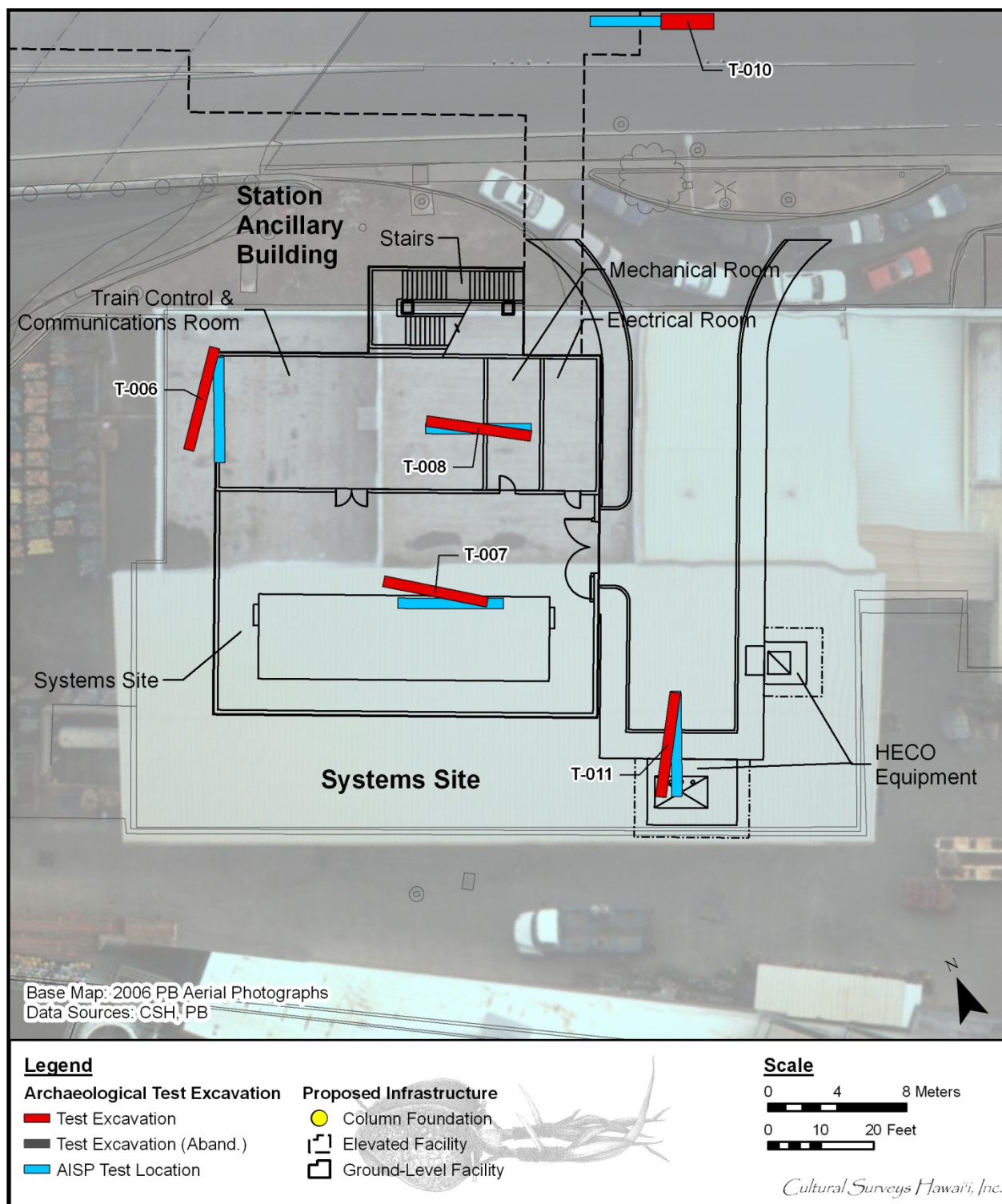


Figure 27. Middle Street Transit Center Station, detail of *makai* Station Ancillary Building showing locations of proposed AISP and actual AIS test excavations

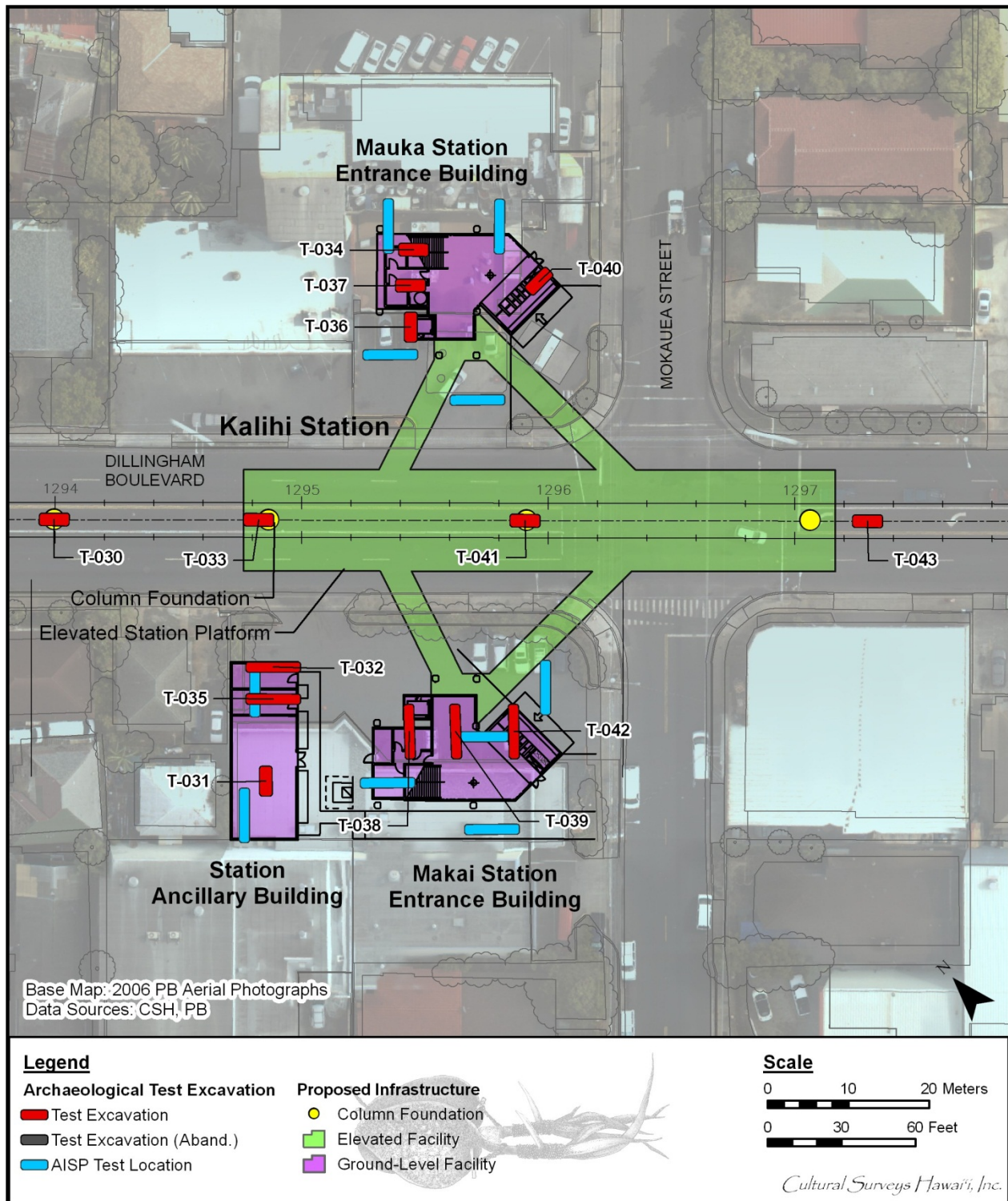


Figure 28. Kalihi Station (Dillingham Boulevard just west of Mokauea Street), aerial photograph showing overlay of transit station infrastructure (see following figures for details) and locations of proposed AISP and actual AIS test excavations



Figure 29. General view of Kalihi Station, southeast side of *makai* Station Entrance Building, (parking lot and Salon Del Mar hair styling), view to southwest



Figure 30. General view of Kalihi Station, southwest side of (*makai*) Station Entrance Building, (parking lot and Dillingham Cafe), view to southwest



Figure 31. General view of Kalihi Station, column foundations location, middle of Dillingham Boulevard, view to northwest



Figure 32. General view of Kalihi Station, *mauka* Station Entrance Building (parking lot and 7-Eleven convenience store), view to northeast

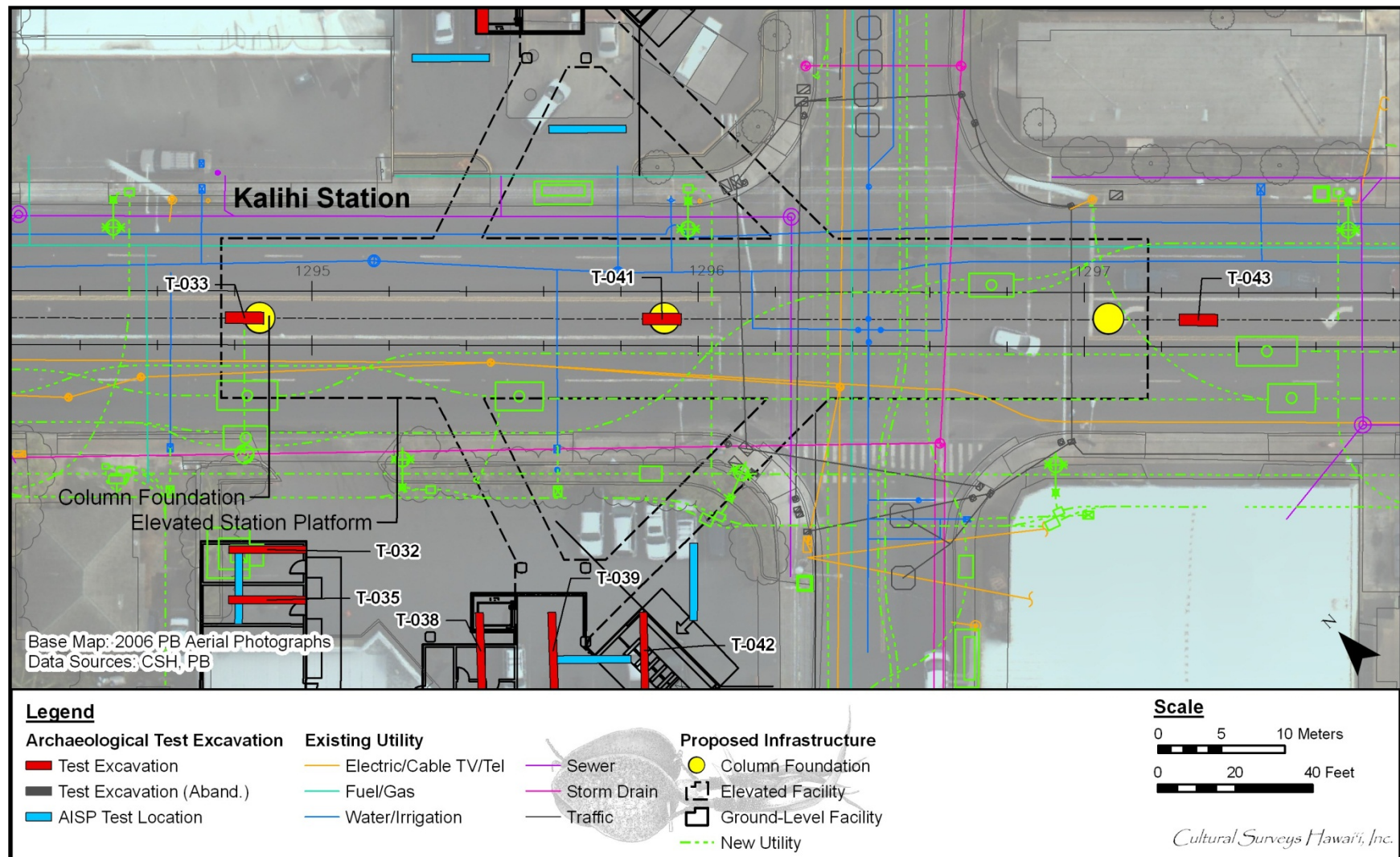


Figure 33. Kalihi Station, detail of column foundation layout at Dillingham Boulevard showing locations of proposed AISP and actual AIS test excavations

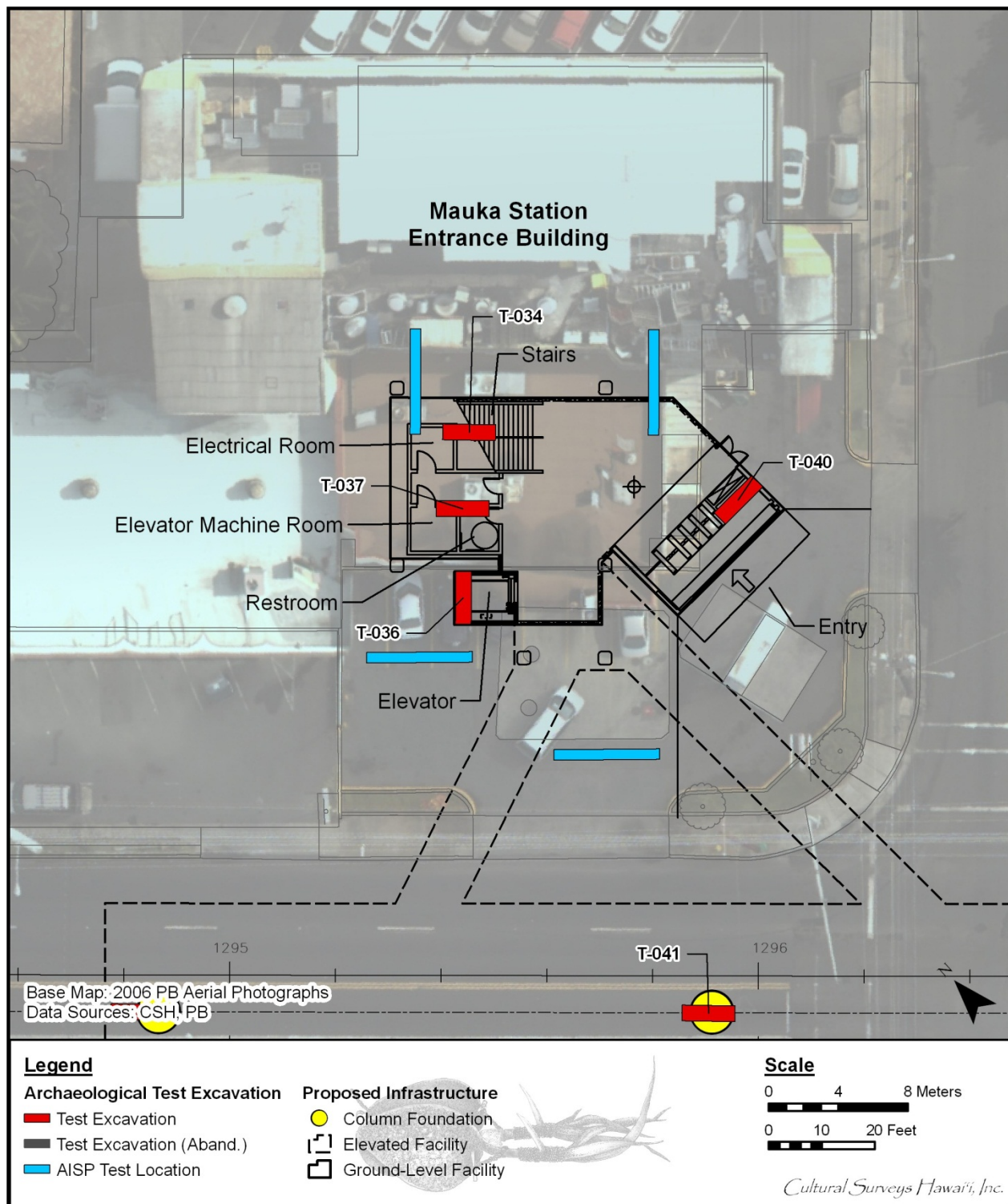


Figure 34. Kalihi Station, detail of *mauka* Station Entrance Building showing locations of proposed AISP and actual AIS test excavations

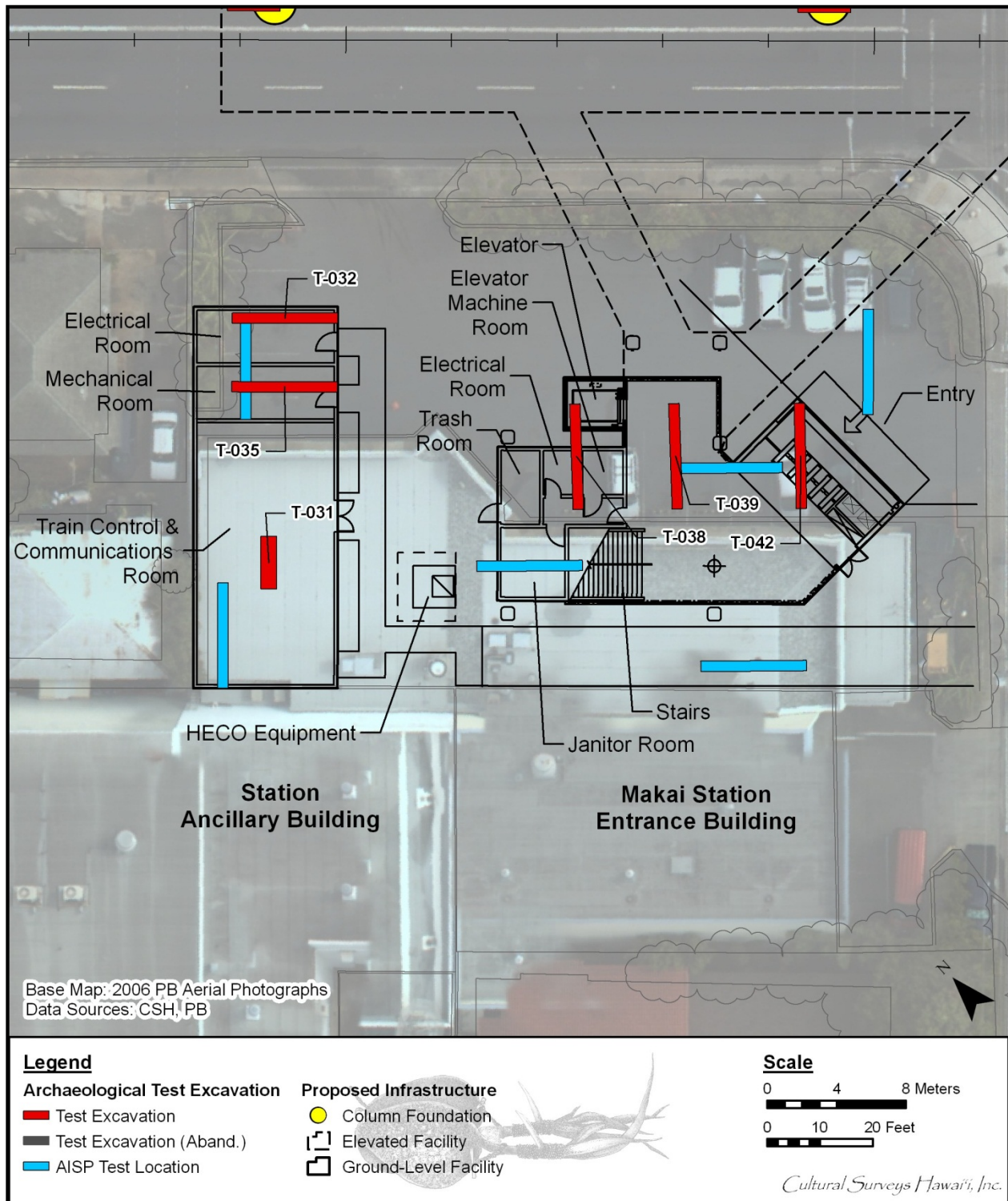


Figure 35. Kalihi Station, detail of *makai* Station Entrance Building showing locations of proposed AISP and actual AIS test excavations

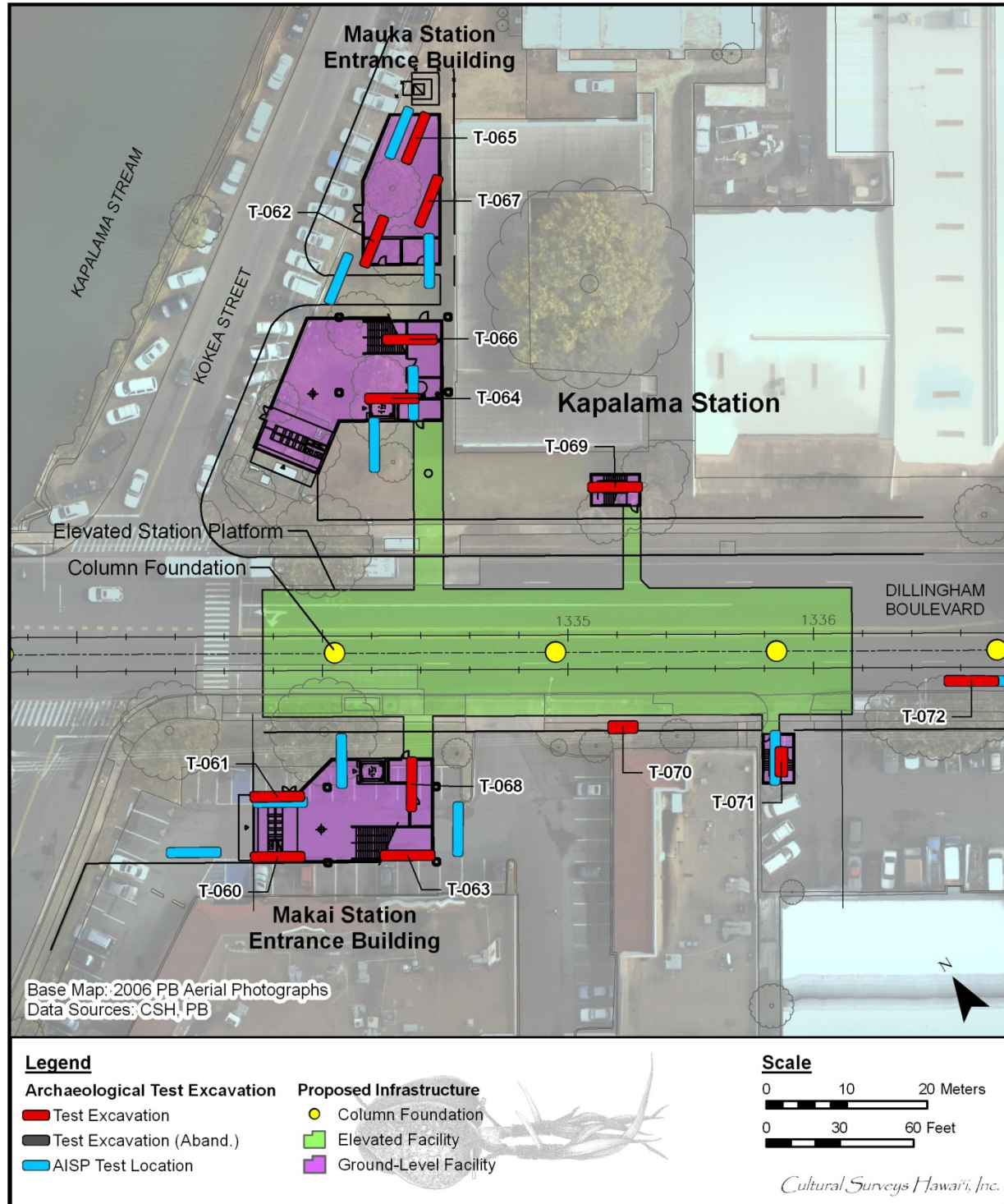


Figure 36. Kapālama Station (Dillingham Boulevard just east of Kokea Street and *makai* of Honolulu Community College), aerial photograph showing overlay of transit station infrastructure (see following figures for details) and locations of proposed AISP and actual AIS test excavations



Figure 37. General view of Kapālama Station, *mauka* Station Entrance Building location, (northwest side of Honolulu Community College campus, Kapālama Canal at upper left), view to northeast



Figure 38. General view of Kapālama Station, (*mauka*) Station Entrance Building, secondary *mauka* entry/exit location, view to northeast



Figure 39. General view of Kapālama Station, *makai* Station Entrance Building location (parking lot), view to southwest



Figure 40. General view of Kapālama Station, *makai* Station Entrance Building location (parking lot), view to southeast

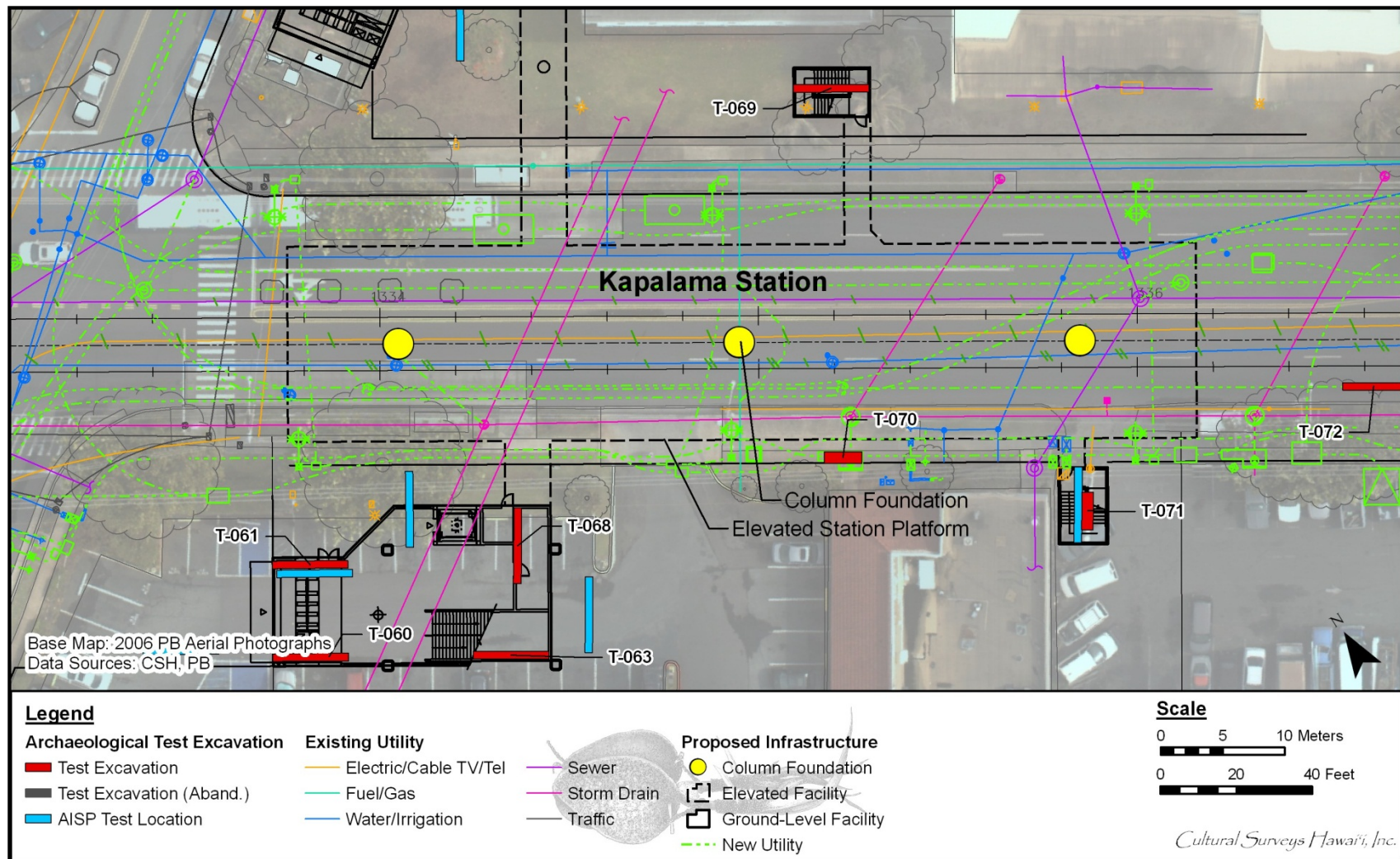


Figure 41. Kapālama Station, detail of column foundation layout at Dillingham Boulevard showing locations of proposed AISP and actual AIS test excavations; note that no testing of the three station column foundations was conducted due to utilities

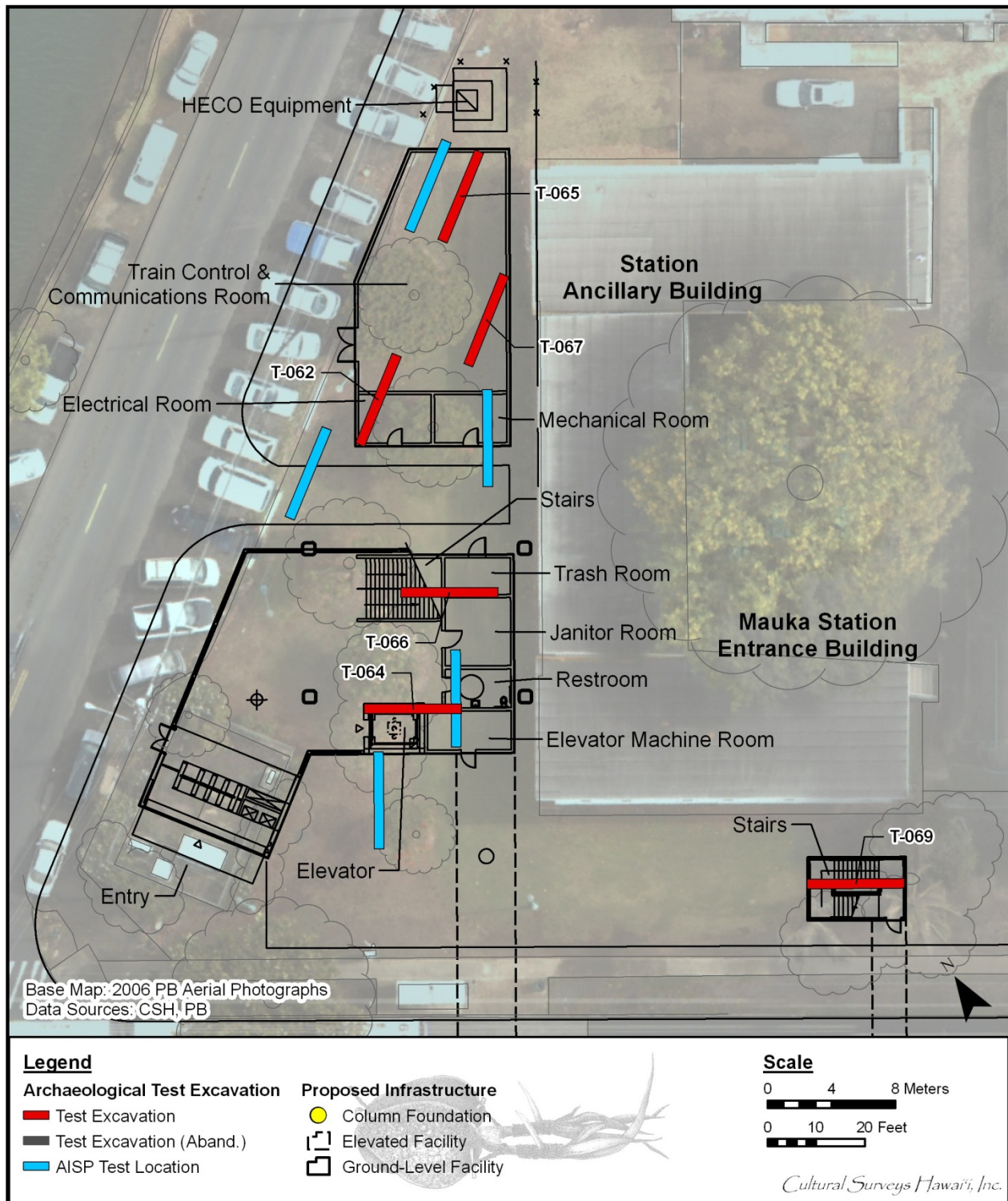


Figure 42. Kapālama Station, detail of *mauka* Station Entrance Building showing locations of proposed AISP and actual AIS test excavations

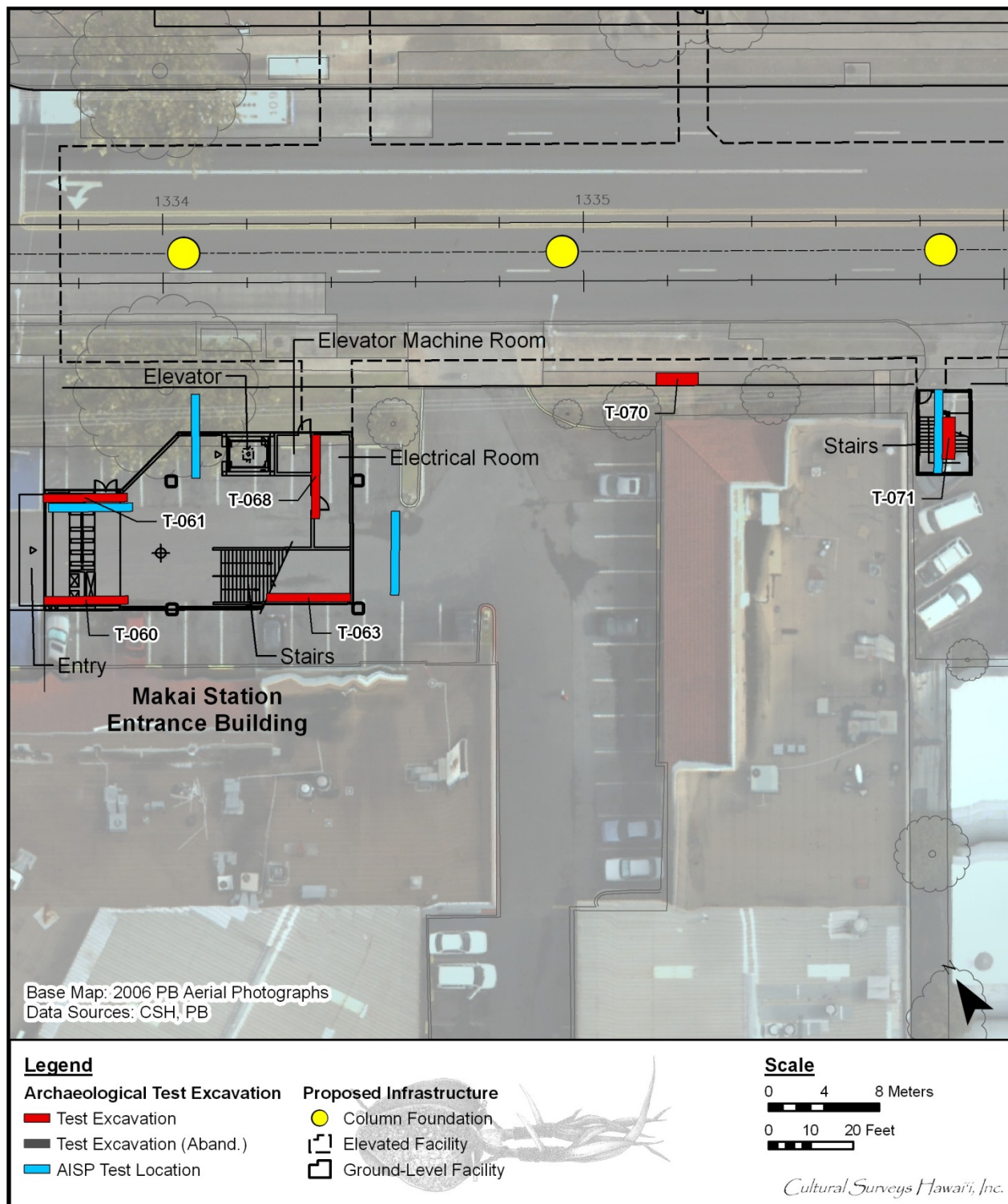


Figure 43. Kapālama Station, detail of *makai* Station Entrance Building showing locations of proposed AISP and actual AIS test excavations

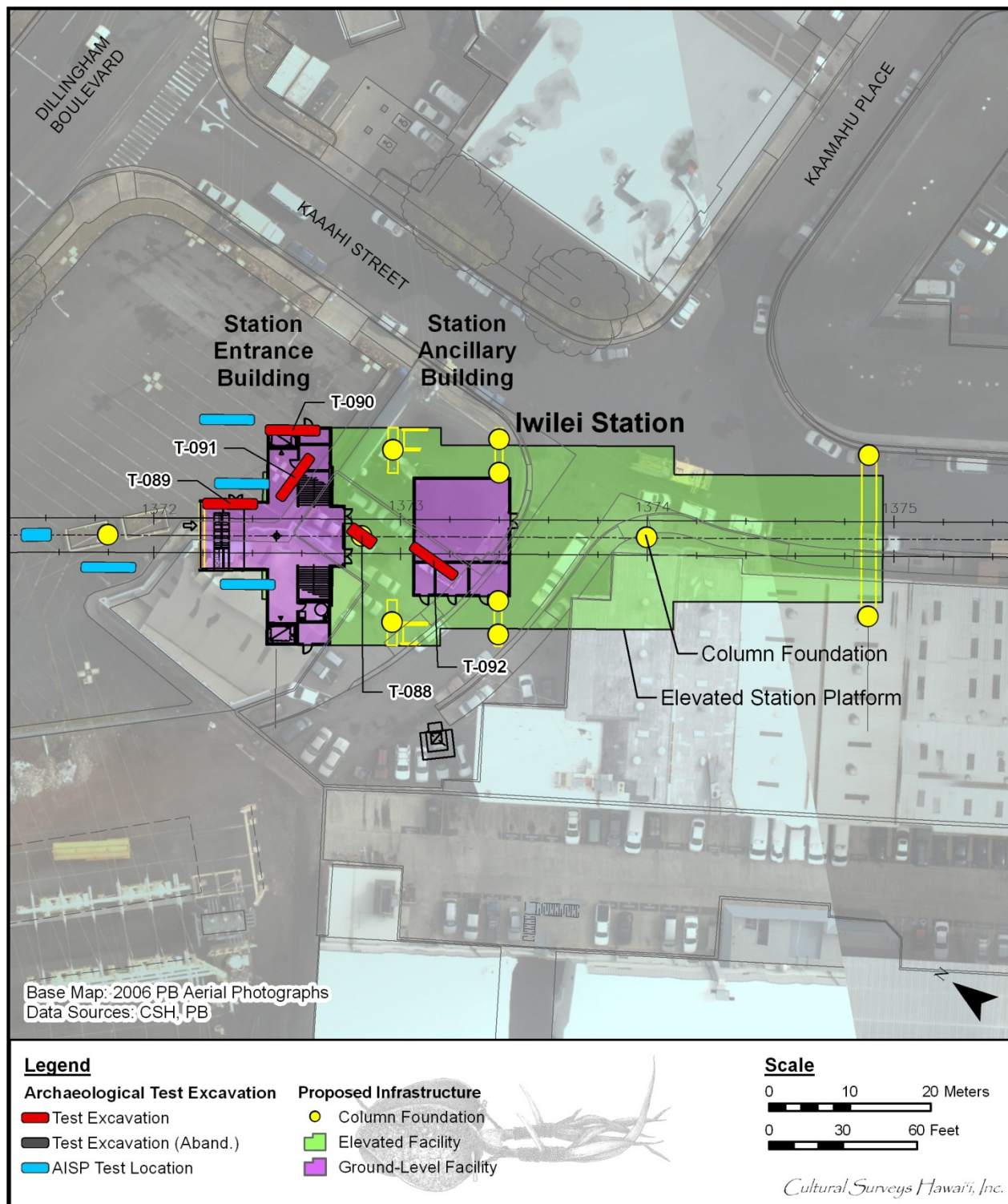


Figure 44. Iwilei Station *makai* of Ka'a'ahi Street and Ka'amahu Place), aerial photograph showing overlay of transit station infrastructure (see following figures for details) and locations of proposed AISP and actual AIS test excavations



Figure 45. General view of north side of Iwilei Station (parking lot and Nu‘uanu Auto Co.) from Dillingham Boulevard, view to south



Figure 46. General view of south side of Iwilei Station (Nu‘uanu Auto Co.) from across Ka‘amahu Place, view to north



Figure 47. General view of Iwilei Station, location of central column foundations (Da Kine's Sports Bar at upper right, Ka'a'ahi Street at left), view to south



Figure 48. General view of Iwilei Station, location of southeastern straddle column foundations on Ka'a'ahi Street, view to northwest

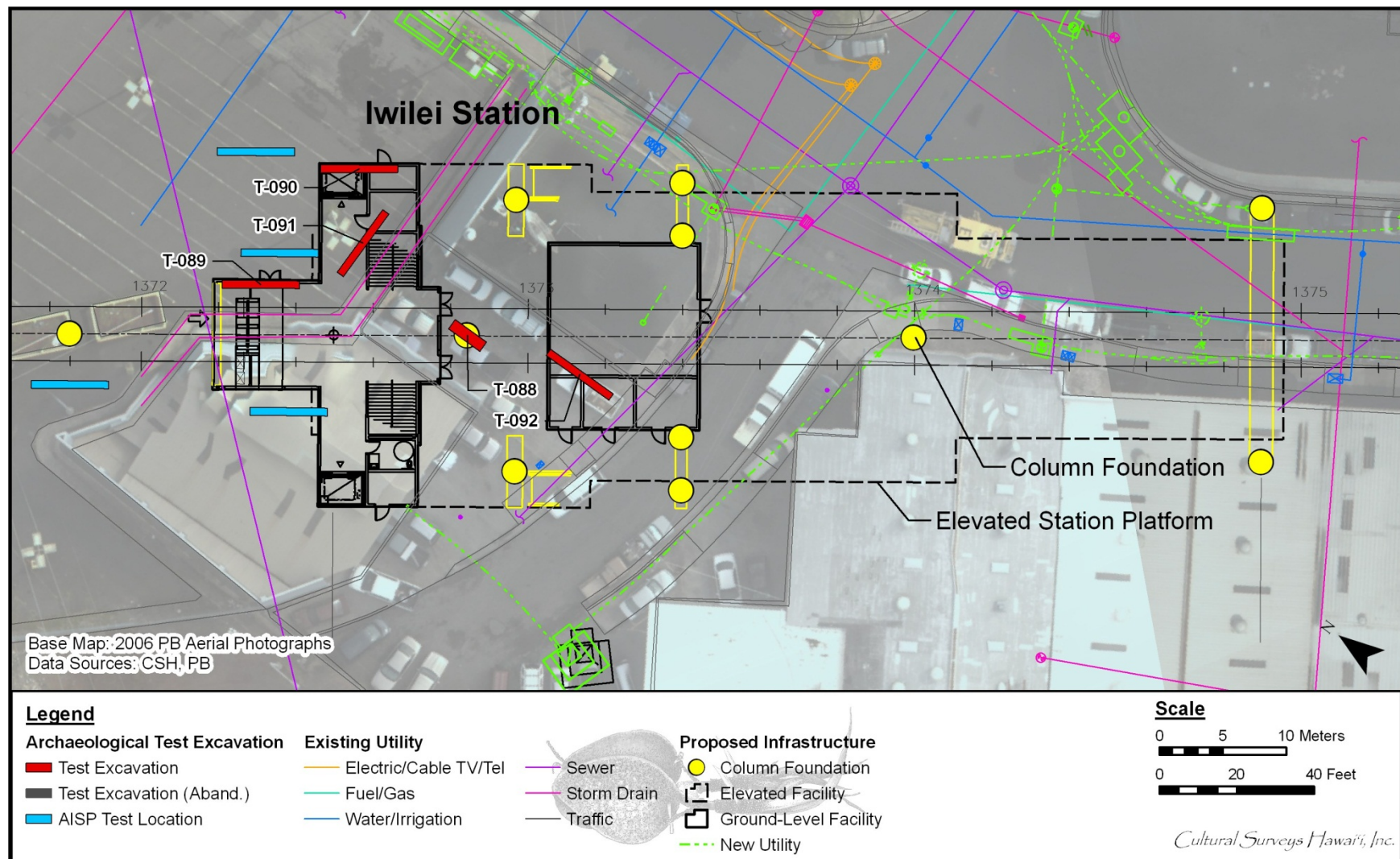


Figure 49. Iwilei Station, detail of column foundation layout showing locations of proposed AISP and actual AIS test excavations

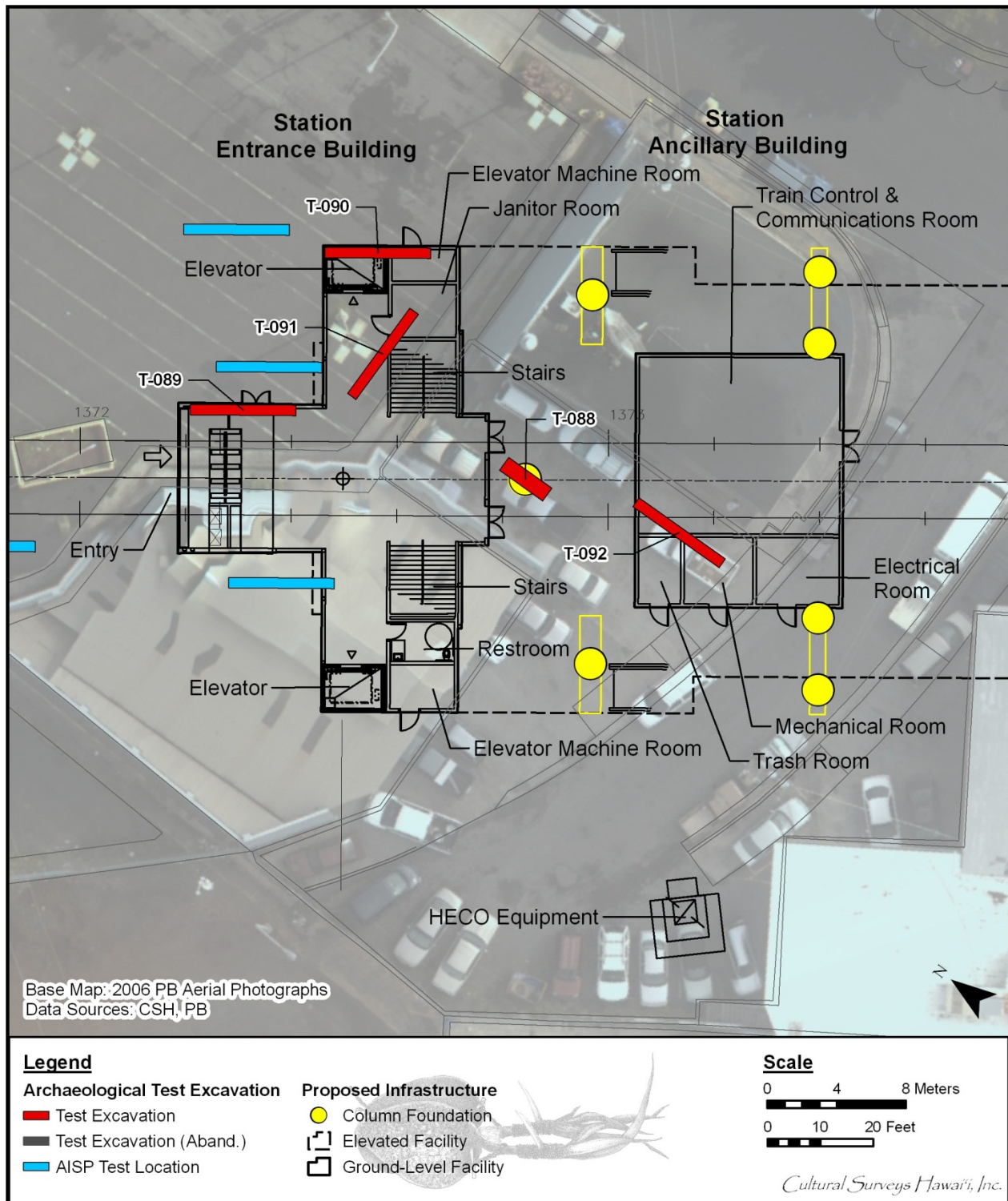


Figure 50. Iwilei Station, detail of Station Entrance Building showing locations of proposed AISP and actual AIS test excavations

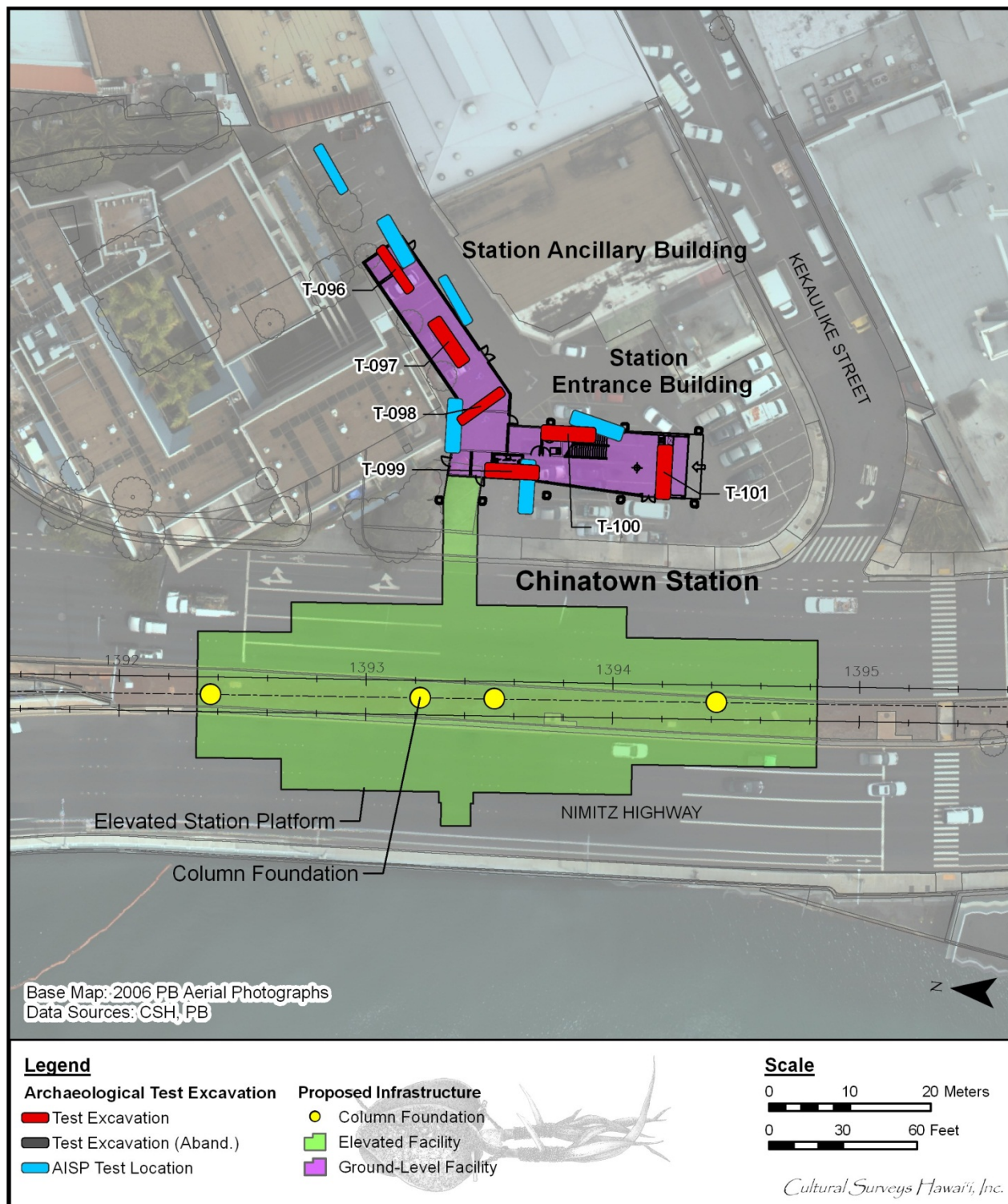


Figure 51. Chinatown Station, aerial photograph showing overlay of transit station infrastructure (see following figures for details) and locations of proposed AISP and actual AIS test excavations



Figure 52. General view of Chinatown Station, Station Entrance Building location, view from *mauka* side of Nimitz Highway, view to northeast



Figure 53. General view of Chinatown Station, Station Entrance Building location, view from *mauka*/Ewa corner of Nimitz Highway and Kekaulike Street, view to north



Figure 54. General view of Chinatown Station, view of southern column foundation locations in median of Nimitz Highway, view to north



Figure 55. General view of Chinatown Station, view of infrastructure location and northern column foundation locations in median of Nimitz Highway, view to north

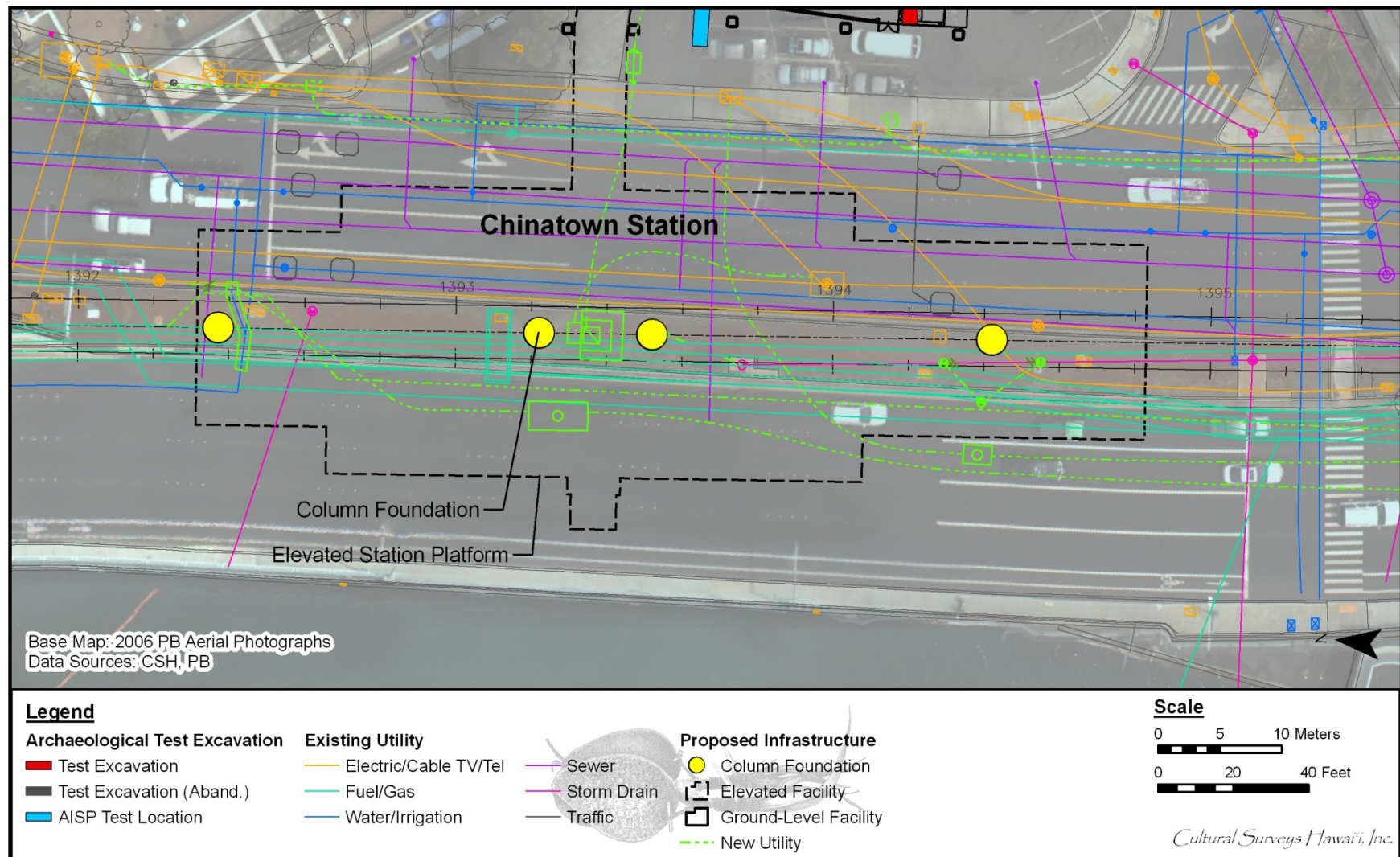


Figure 56. Chinatown Station detail of column foundation layout showing that no testing was conducted of the four column foundations, due to their location seaward of the former coastline and constraints

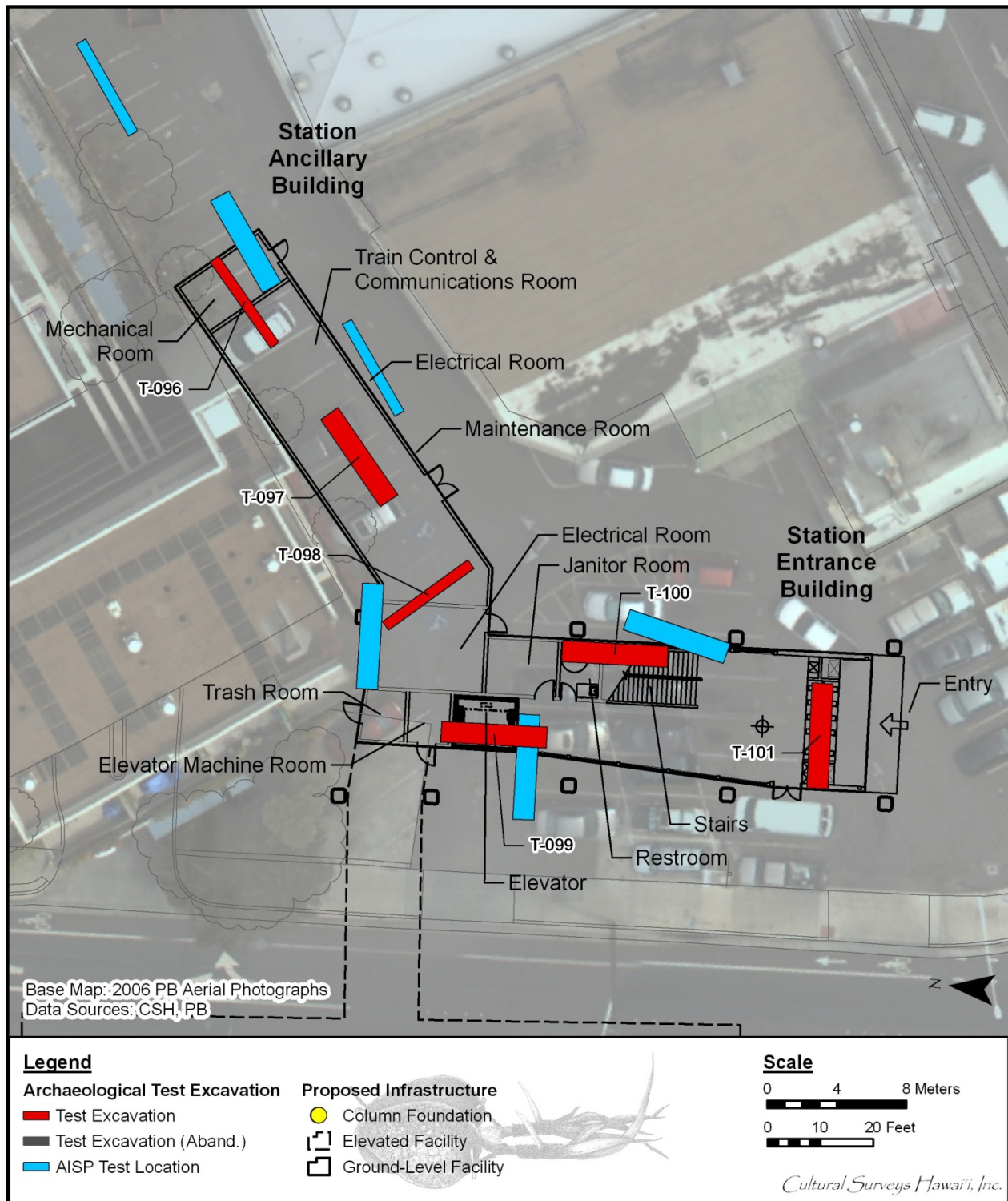


Figure 57. Chinatown Station detail of *mauka* Station Entrance Building and Station Ancillary Building layout showing locations of proposed AISP and actual AIS test excavations

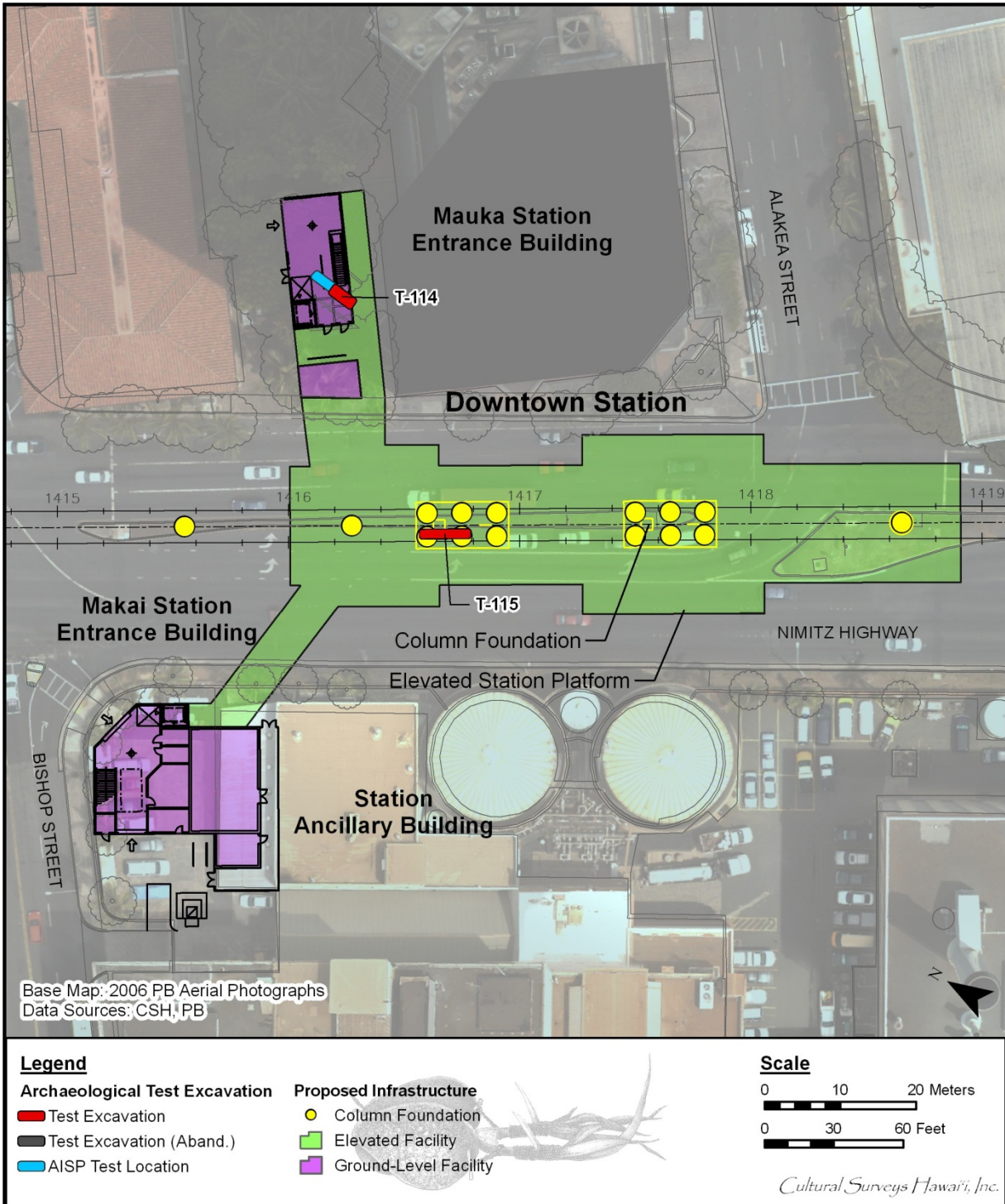


Figure 58. Downtown Station (northwest of the intersection of Alakea Street and Nimitz Highway), aerial photograph showing overlay of transit station infrastructure (see following figures for details) and locations of proposed AISP and actual AIS test excavations



Figure 59. Downtown Station, *mauka* Station Entrance Building location, Pacific Guardian Center west plaza, view to northeast



Figure 60. Downtown Station, *mauka* Station Entrance Building location, Pacific Guardian Center west plaza, view to southwest



Figure 61. Downtown Station, column locations in median of Nimitz Highway, (HECO facility at upper left), from *mauka*/'Ewa corner of Alakea Street and Nimitz Highway, view to west



Figure 62. Downtown Station, *makai* Station Entrance Building location and column location in median of Nimitz Highway, (HECO facility), from across Nimitz Highway, view to west

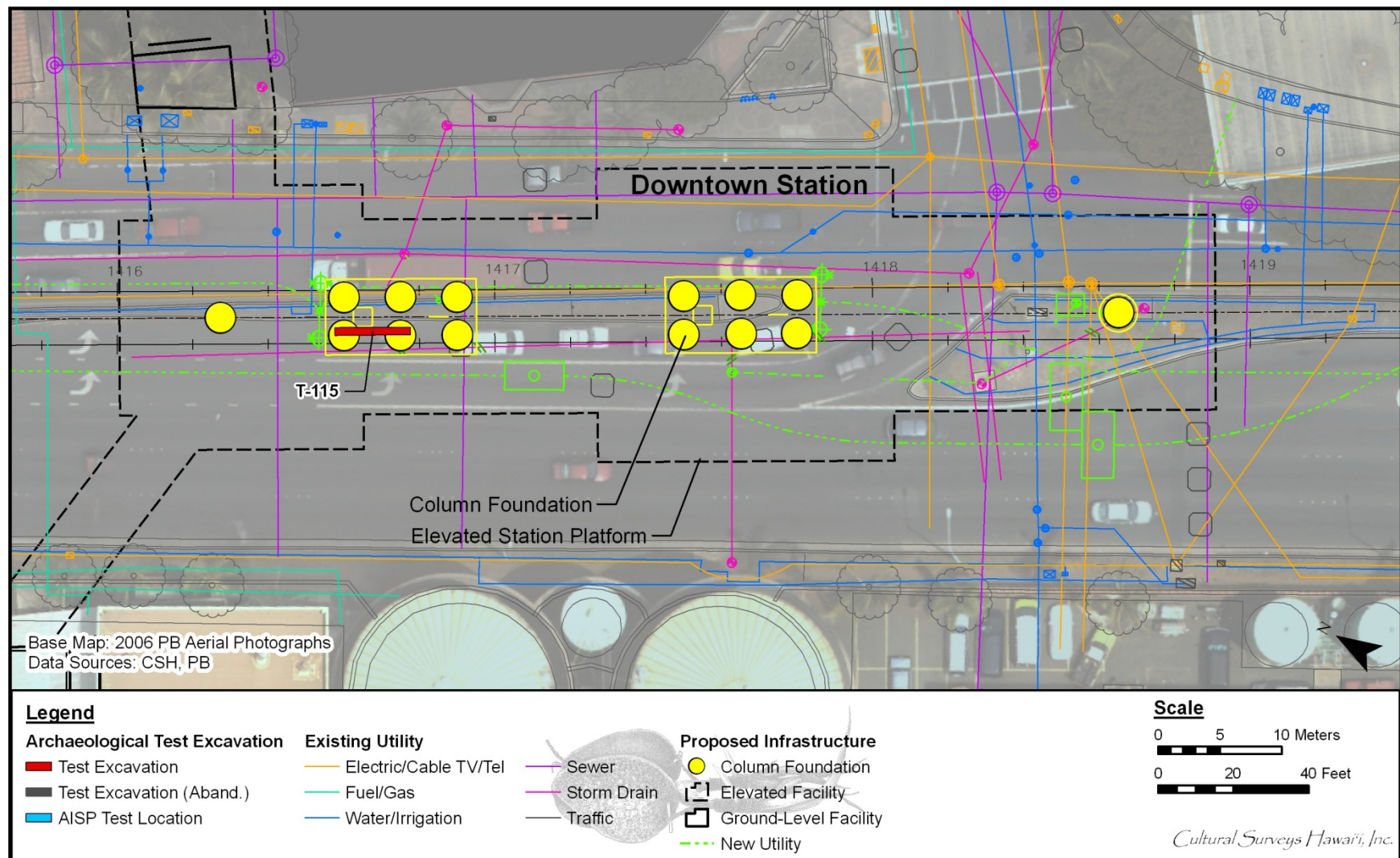


Figure 63. Downtown Station, detail of column foundation layout at Nimitz Highway showing location of actual AIS test excavations

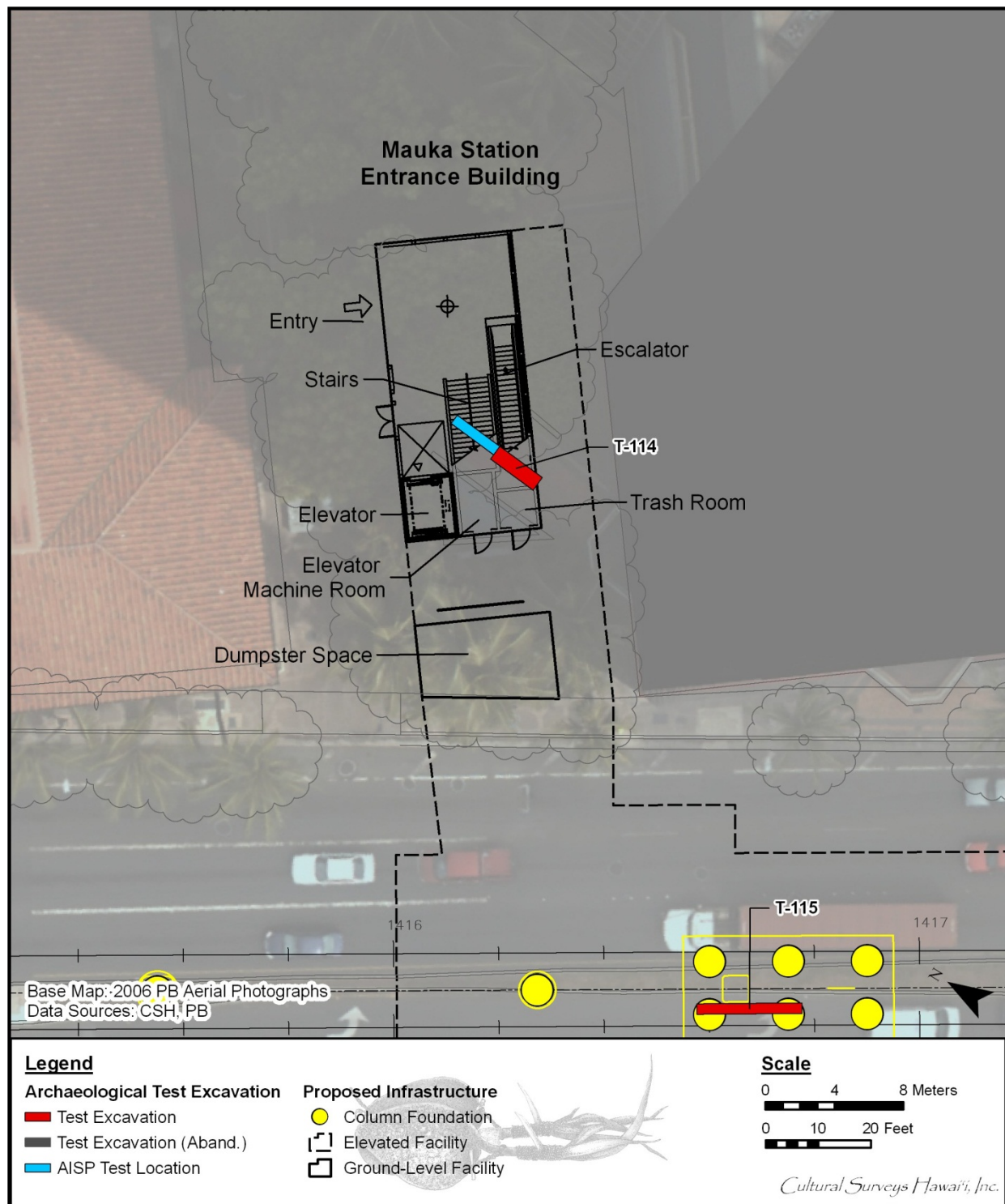


Figure 64. Downtown Station, detail of *mauka* Station Entrance Building at *mauka* side of Nimitz Highway showing locations of proposed AISP and actual AIS test excavations

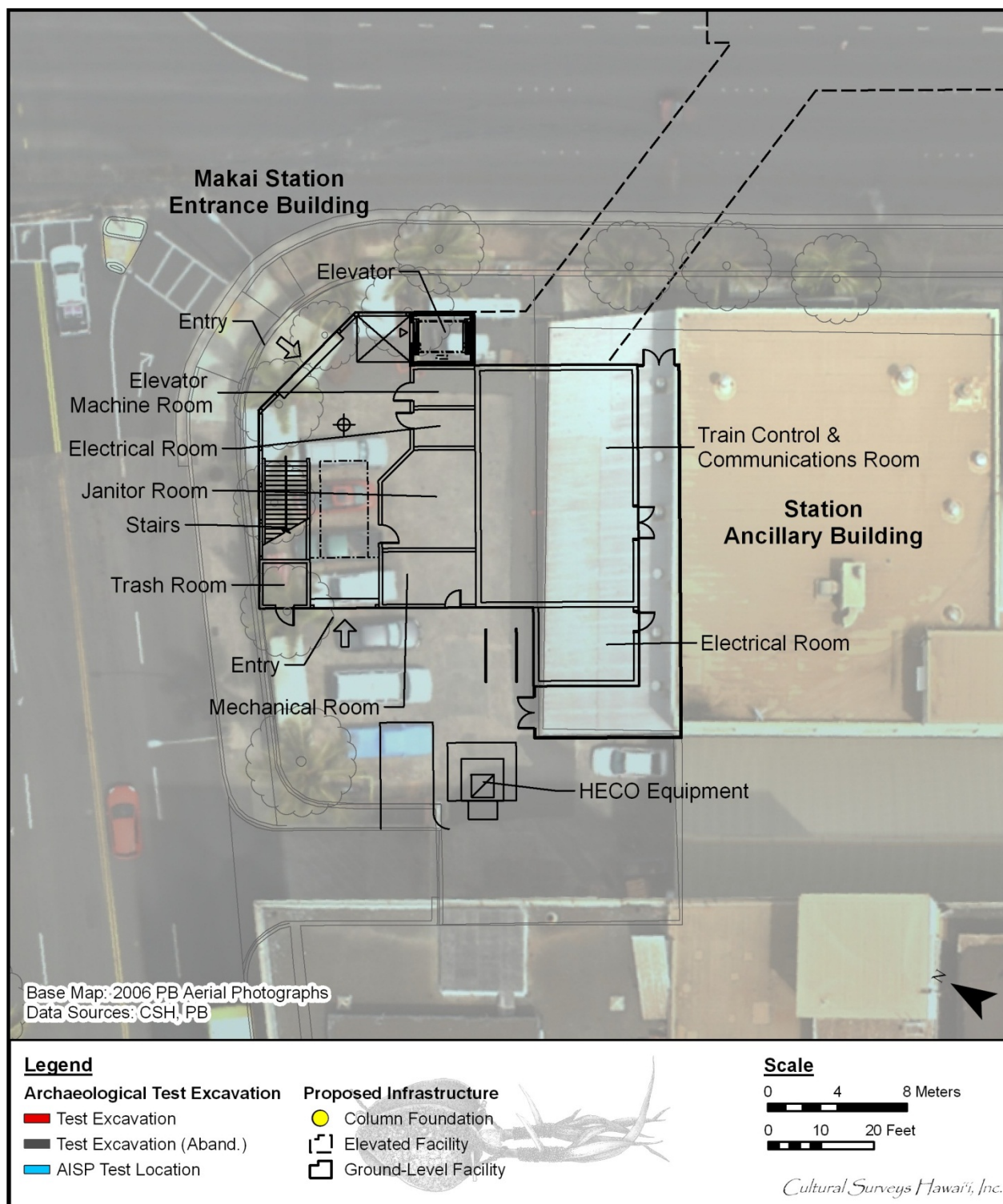


Figure 65. Downtown Station, detail of *makai* Station Entrance Building at *makai* side of Nimitz Highway showing that no testing was conducted at the *makai* Station Entrance Building due to its location seaward of the former shoreline and constraints

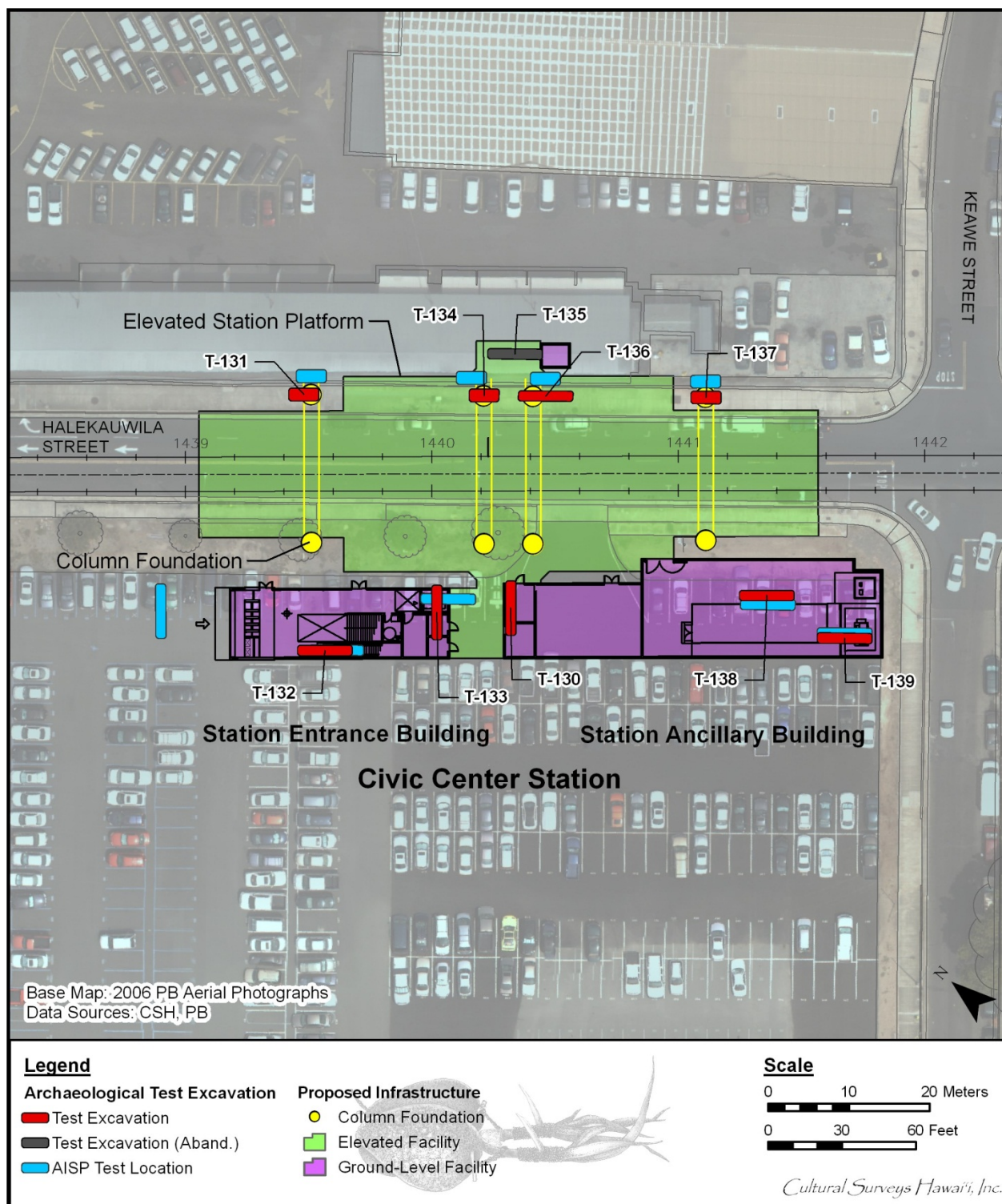


Figure 66. Civic Center Station (at Halekauwila Street just northwest of Keawe Street), aerial photograph showing overlay of transit station infrastructure (see following figures for details) and locations of proposed AISP and actual AIS test excavations



Figure 67. Civic Center Station location of *mauka* column foundations and infrastructure, Halekauwila Street at left, view to northwest



Figure 68. Civic Center Station location of *makai* column foundations, Halekauwila Street at right, view to northwest



Figure 69. Civic Center Station, *makai* Station Entrance Building location (note: repaved rectangles of recent archaeological test excavations), view to northwest



Figure 70. Civic Center Station, *makai* Station Entrance Building location (note: repaved rectangles of recent archaeological test excavations, Halekauwila Street at upper left), view to southeast

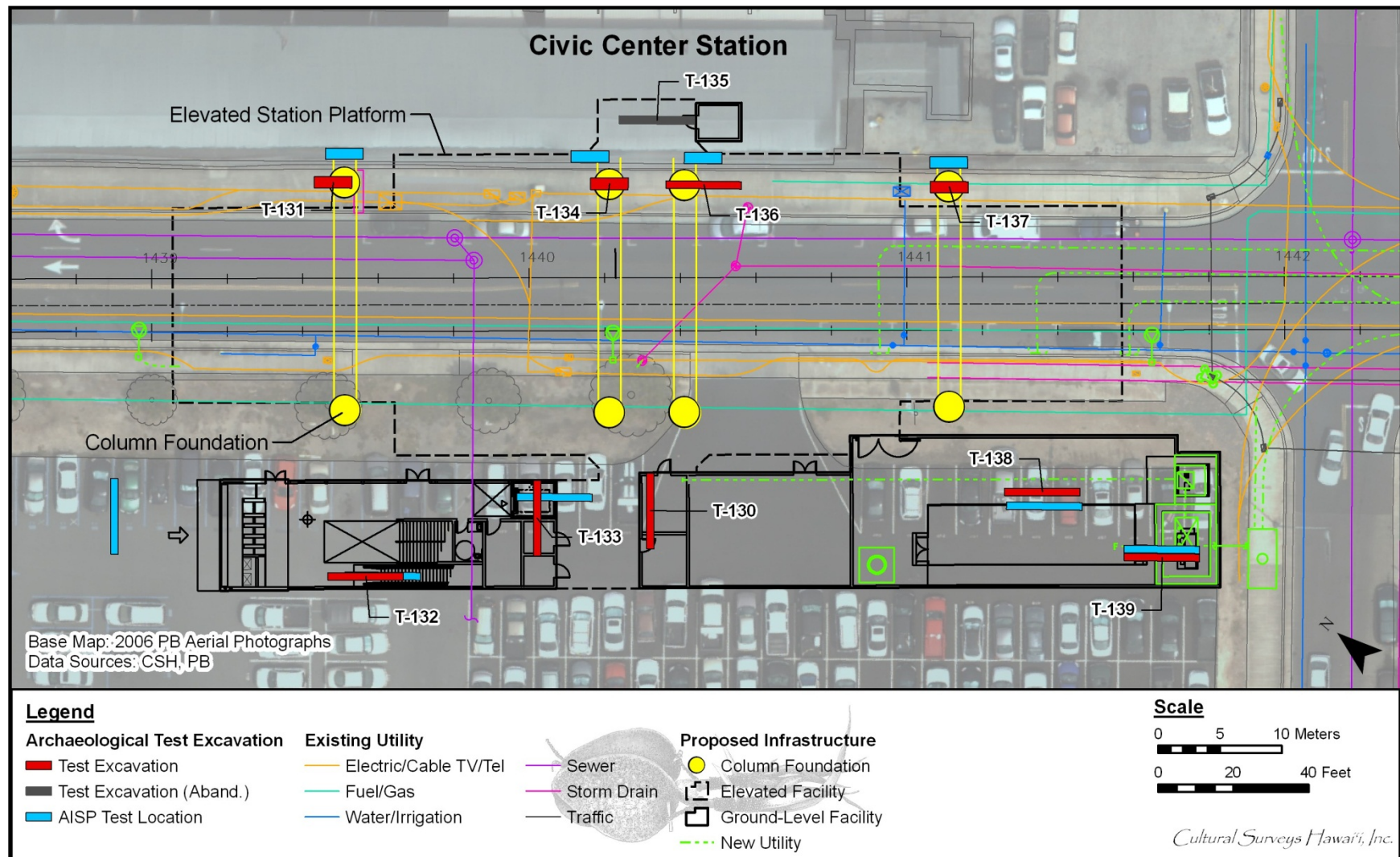


Figure 71. Civic Center Station, detail of column foundation layout showing locations of proposed AISP and actual AIS test excavations

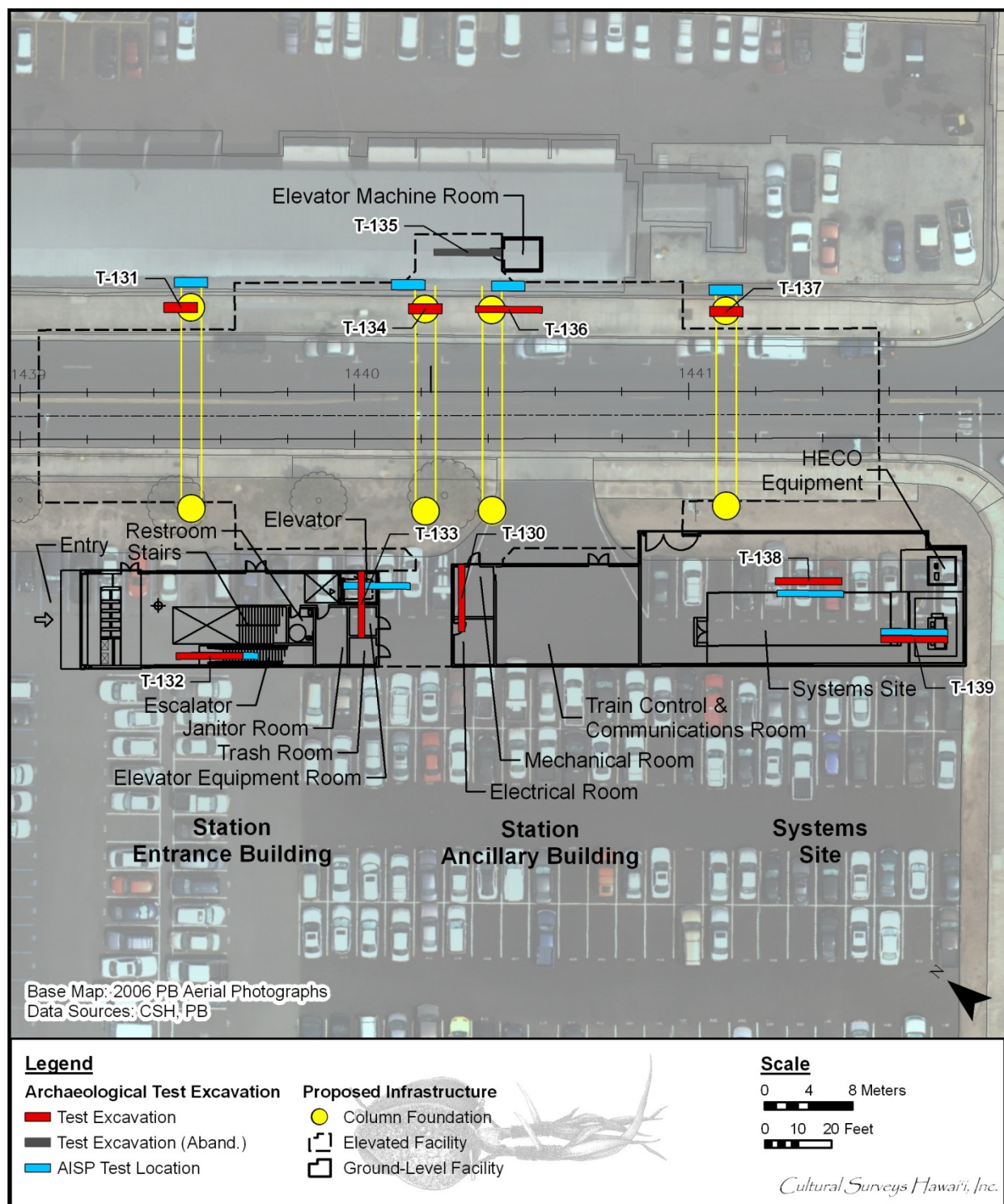


Figure 72. Civic Center Station, detail of *makai* Station Entrance Building (at *makai* side of Halekauwila Street northwest of Keawe Street), showing locations of proposed AISP and actual AIS test excavations

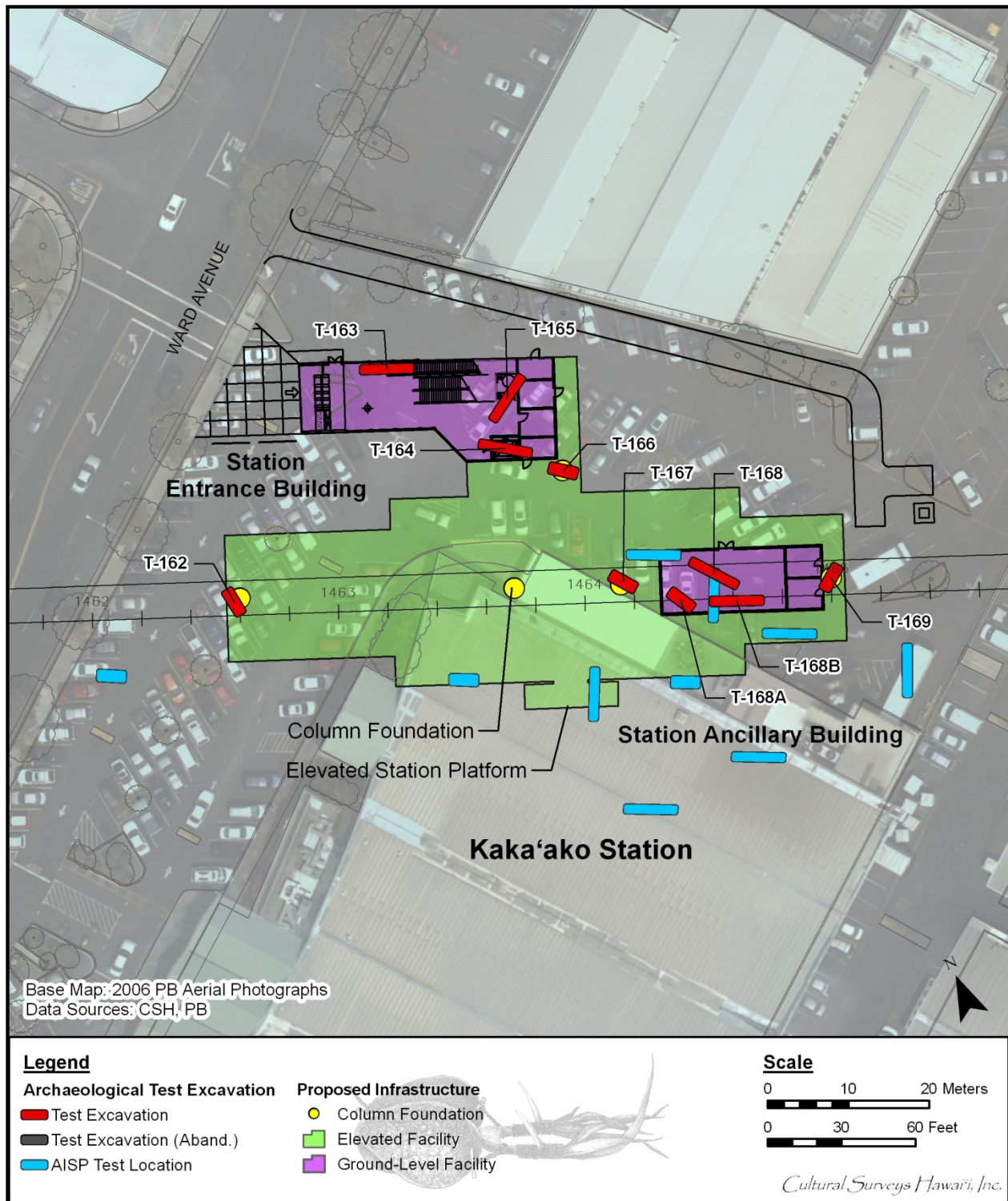


Figure 73. Kaka'ako Station (just southeast of Ward Avenue and southwest of Queen Street), aerial photograph showing overlay of transit station infrastructure (see following figures for details) and locations of proposed AISP and actual AIS test excavations



Figure 74. Kaka'ako Station, view toward central column foundation location, view to south



Figure 75. Kaka'ako Station, view of northeast portion of station (parking lot), Ross Dress for Less at right, view to south

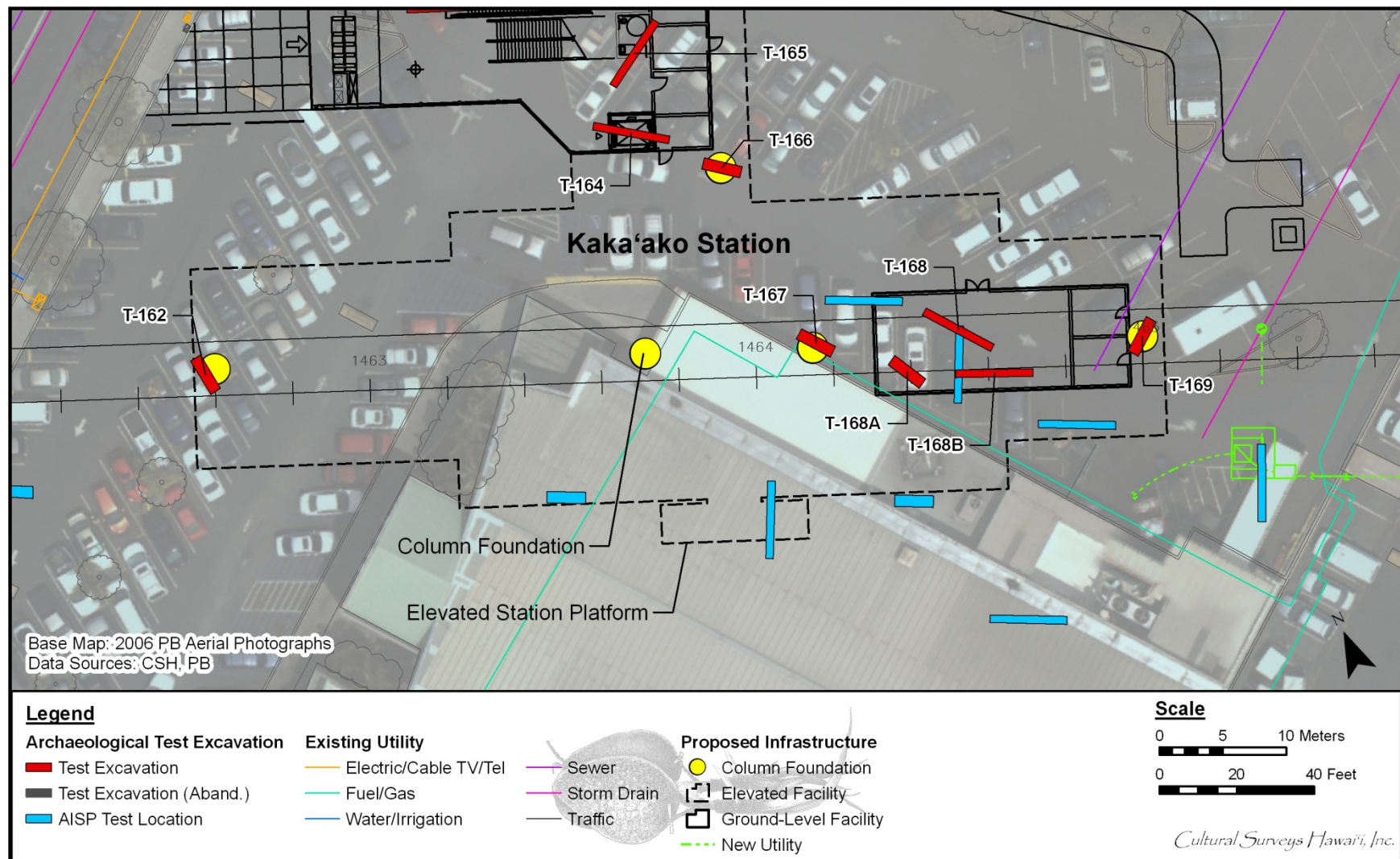


Figure 76. Kaka'ako Station, detail of column foundation layout showing locations of proposed AISP and actual AIS test excavations

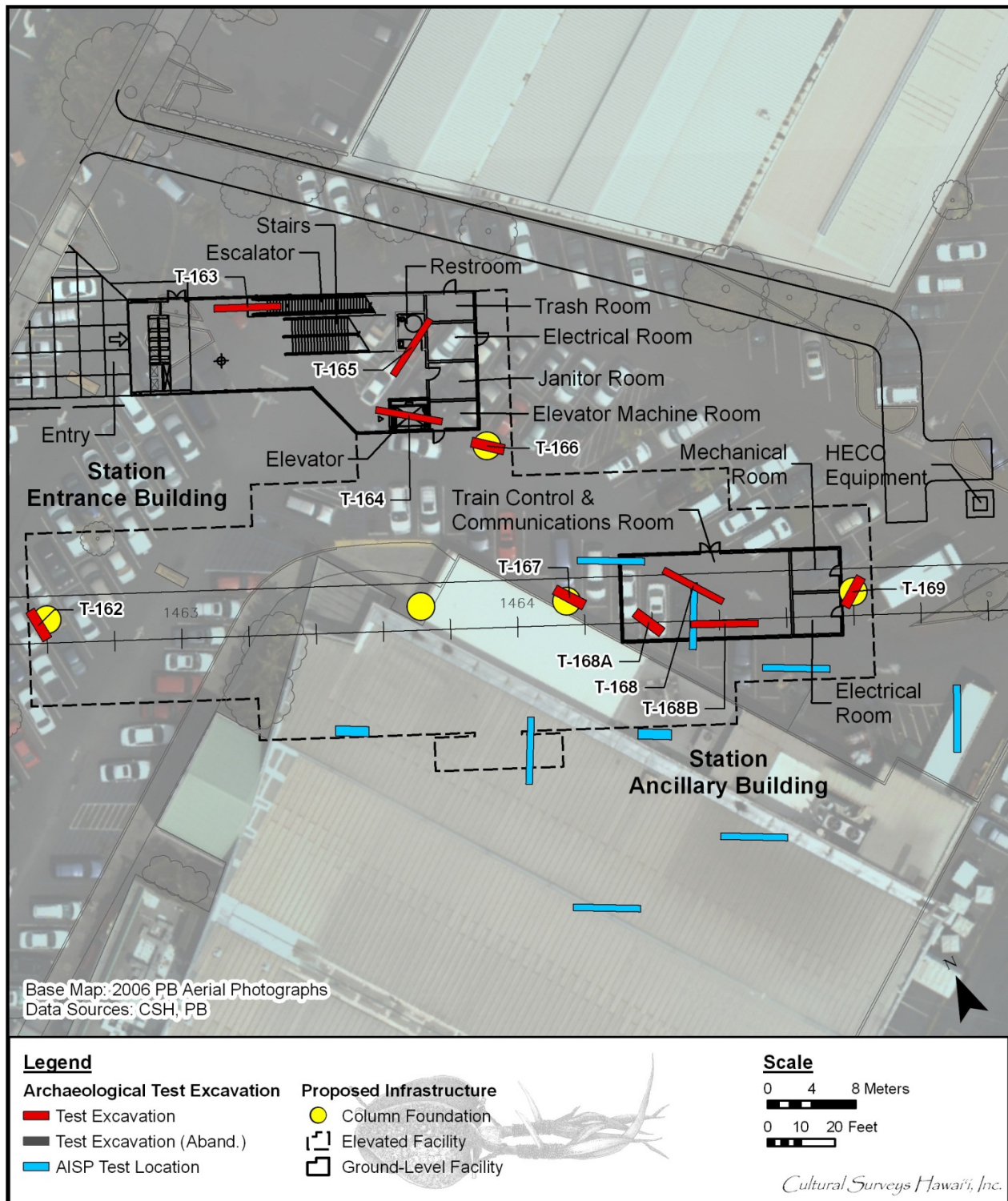


Figure 77. Kaka'ako Station, detail of building foundation layout showing locations of proposed AISP and actual AIS test excavations

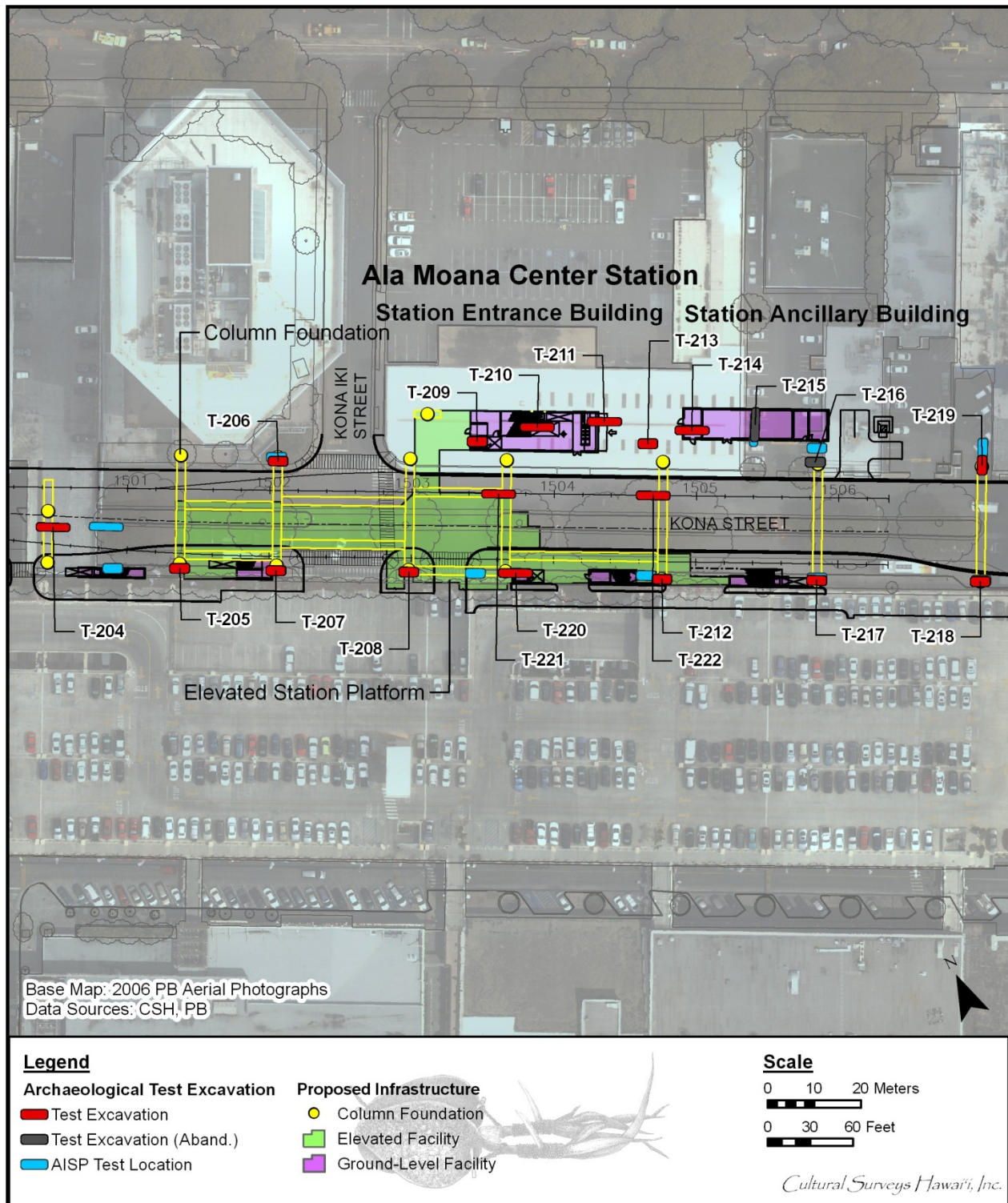


Figure 78. Ala Moana Center Station (at Kona Street just southeast of Kona Iki Street), aerial photograph showing overlay of transit station infrastructure (see following figures for details) and locations of proposed AISP and actual AIS test excavations



Figure 79. General view of Ala Moana Center Station, saddle column foundation locations flanking Kona Street (from Kona Iki Street intersection), view to southeast



Figure 80. General view of Ala Moana Center Station, Station Ancillary Building location (presently recycling warehouse) from intersection of Kona Street and Kona Iki Street, view to east



Figure 81. Ala Moana Center Station, column foundation location (in front of Tattoo Hawai'i), view to east



Figure 82. Ala Moana Center Station, column foundation location (in side lot by Nail Boutique), view to east

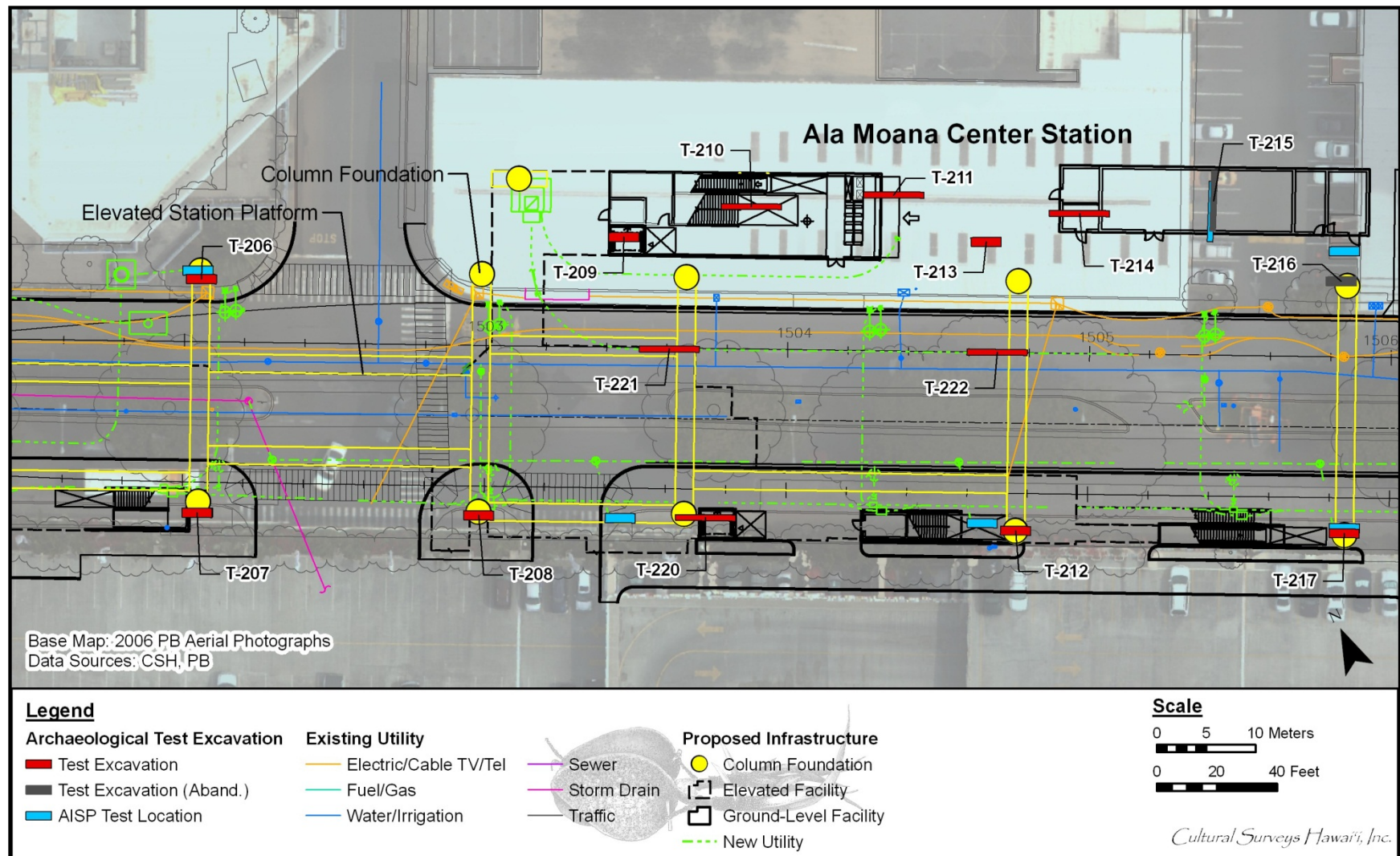


Figure 83. Ala Moana Center Station, detail of column foundation layout showing locations of proposed AISP and actual AIS test excavations

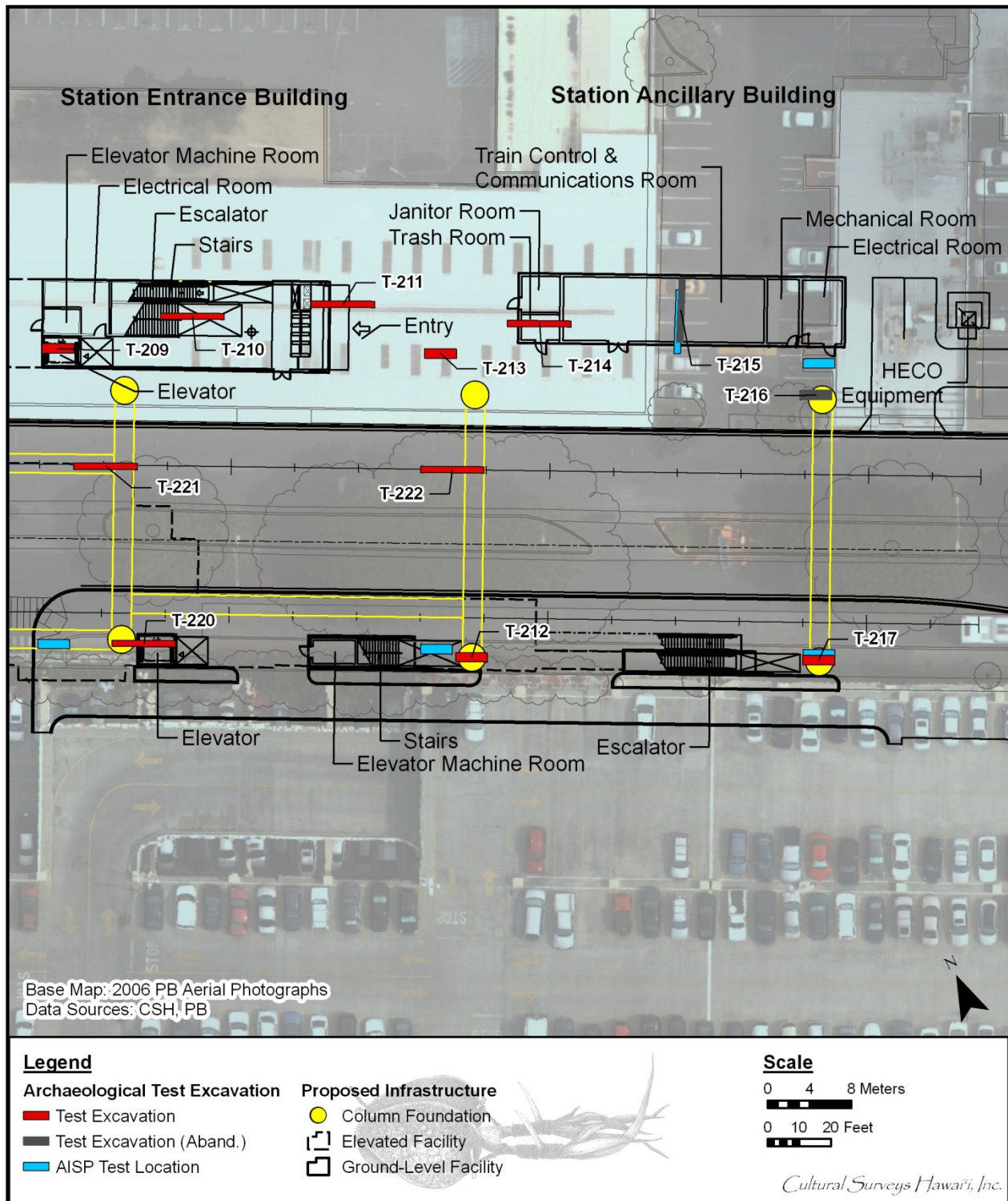


Figure 84. Ala Moana Center Station, detail of *mauka* Station Ancillary Building foundation layout and Station Entrance Building foundation layout showing locations of proposed AISP and actual AIS test excavations

3.5 Excavation Sampling Strategy—Guideway Column Foundation Locations and Utility Relocations

The current AIS study area, which consists of Section 4 and the easternmost portion of Section 3 (east of Kalihi Stream), includes approximately 163 guideway column foundations, generally spaced approximately 120 feet apart over the approximately 4.3-mile-long (6.9 km) study area.

Ninety-five (95) test excavations were excavated in station footprints/foundations or columns directly associated with the nine City Center stations. These are described in detail in Section 3.4 and Table 5, above. Sixty-two (62) test excavations were carried out in non-station column foundations. Additionally, 103 test excavations targeted areas of utility relocations. Table 6 presents a percent breakdown of test excavations by project component.

Table 6. Percent Breakdown of Test Excavations by Project Component Tested

| Project Component Tested | Percentage of Total Test Excavations |
|--|--------------------------------------|
| Guideway Columns | 24.8 |
| Stations (including station buildings, platforms, and columns) | 34.0 |
| Utility relocations | 41.2 |

Subsurface testing occurred following the pedestrian survey of the study area and GPR survey of the specific testing areas (refer to the earlier Research Design and Methods Section 2). Additional testing was considered in areas near any test excavation where archaeological cultural resources were identified, or where testing results indicated the likelihood of archaeological cultural resources. The extent of additional testing was made in consultation with the SHPD and project engineers (see discussion in Section 3.3, above). The test excavations for guideway column foundations are distributed throughout the study area and focused on areas of intensive traditional Hawaiian activity.

Table 7 and Figure 85 through Figure 111 provide a high level of detail regarding the guideway column foundation and utility relocation test excavations in the study area. Table 7 lists the locations of guideway column foundation and utility relocation test excavations, as well the locations of transit station test excavations, discussed above in Section 3.4. The figures not only depict the locations of test excavations, but provide insight into how the test excavation locations were chosen—for example, they show the specific project component or feature that is tested by each test excavation. For the guideway column foundations and utility relocations, test excavations were chosen based on considerations of previous archaeological studies, identified cultural resources, LCAs, the former shoreline, and constraints due to the heavily built-up and urbanized environment, including existing utility corridors. Guideway column foundations and utility relocations in areas of previous subsurface work and areas located seaward of the former shoreline (which would contain only fill materials—such as in the vicinity of the Downtown Station) had much fewer test excavations. The results of previous archaeological studies informed on whether or not particular areas contained evidence of traditional Hawaiian or post-

Contact activities. Areas with identified cultural resources and areas within or in the vicinity of LCAs acted as indicators of areas of intensive traditional Hawaiian activity. These areas provided a focus for testing.

In the following figures, the original AISP proposed testing locations are shown in blue, while the actual excavated trenches are shown in red, and abandoned test excavations are shown in black. If the number of blue AISP proposed test excavations is less than indicated on Table 7, this is because the red actual test excavations share the same footprint, and the red actual test excavations cover the AISP proposed test excavations. Proposed utility corridors for the project are shown in lime green, while existing utility corridors are shown in a variety of other colors (orange, blue, teal, pink, purple, and black). Individual test excavation locations were shifted slightly due to built environment constraints, as described and allowed in the City Center AISP (Hammatt et al. 2011).

Table 7. Summary of the Approach for Archaeological Inventory Survey Testing by Construction Sheet (from West to East)

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|--|--------------------------------|------------|-----------------------------|--------------------------------|------------|---|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| Map J30 (Kamehameha Hwy. immediately east of Middle Street Transit Center Station to WB 1269+00) | Station Column | 2' by 20' | 001 | Station Column | 2' by 20' | Test excavations at Middle Street Transit Center Station (see Table 5 above) |
| | Station Column | 3' by 10' | 002 | Station Column | 3' by 10' | |
| | Station Column | 3' by 10' | 003 | Abandoned | N/A | |
| | Station Column | 2' by 20' | 004 | Station Column | 3' by 10' | |
| | Station Column | 2' by 20' | 005 | Station Column | 2' by 20' | |
| | Station Building | 2' by 20' | 006 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 007 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 008 | Station Building | 2' by 20' | |
| | Station Column | 2' by 20' | 009 | Station Column | 2' by 20' | |
| | Utility Relocation (27" Sewer) | 2' by 20' | 010 | Utility Relocation (27" Sewer) | 3' by 10' | |
| | Station Building | 2' by 20' | 011 | Station Building | 2' by 20' | |
| | Utility Relocation (12" Sewer) | 2' by 20' | 012 | Utility Relocation (12" Sewer) | 2' by 20' | One test excavation proposed and one test excavation completed; Straddles Kalihi Stream; Utility line constraints for four western column foundations; Note extensive testing at Middle |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|---|-------------------------------------|------------|-----------------------------|--------------------------------|------------|---|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | | | | | | Street Transit Center Station |
| Map J31 (Kamehameha Hwy. east of Middle Street Transit Center Station to WB 1279+00) | Guideway Column | 3' by 10' | 013 | Utility Relocation (12" Sewer) | 2' by 20' | Seven test excavations proposed completed; In area of LCAs; Utility line constraints for column foundations |
| | Utility Relocation (Storm Drain CB) | 3' by 10' | 014 | Utility Relocation (12" Sewer) | 2' by 20' | |
| | Utility Relocation (12" Sewer) | 2' by 20' | 015 | Utility Relocation (12" Sewer) | 2' by 20' | |
| | Utility Relocation (24" Water) | 2' by 20' | 016 | Utility Relocation (24" Water) | 2' by 20' | |
| | Guideway Column | 3' by 10' | 017 | Utility Relocation (6" Gas) | 2' by 20' | |
| | Utility Relocation (24" Water) | 2' by 20' | 018 | Utility Relocation (24" Water) | 2' by 20' | |
| | Guideway Column | 3' by 10' | 019 | Utility Relocation (6" Gas) | 2' by 20' | |
| Map E3 | Guideway | 3' by 10' | 020 | Utility | 2' by 20' | Seven test excavations |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|--|--------------------------------|------------|-----------------------------|-----------------------------|------------|--|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| (Dillingham Blvd. near Laumaka St. and Pu'uhale Rd. to WB 1289+00) | Column | | | Relocation (6" Gas) | | proposed and eight test excavations completed; In area of LCAs; Utility line constraints |
| | N/A | N/A | 020A | Utility Relocation (6" Gas) | 2' by 20' | |
| | Utility Relocation (6" Gas) | 2' by 20' | 021 | Utility Relocation (6" Gas) | 2' by 20' | |
| | Utility Relocation (6" Gas) | 2' by 20' | 022 | Utility Relocation (6" Gas) | 2' by 20' | |
| | Guideway Column | 3' by 10' | 023 | Guideway Column | 2' by 10' | |
| | Guideway Column | 3' by 10' | 024 | Guideway Column | 2' by 10' | |
| | Guideway Column | 3' by 10' | 025 | Guideway Column | 2' by 10' | |
| | Guideway Column | 3' by 10' | 026 | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 027 | Guideway Column | 3' by 10' | |
| Map E4 (Dillingham) | Guideway Column | 3' by 10' | 028 | Guideway Column | 3' by 10' | Test excavations at Kalihi Station (see Section 0, |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|--|-------------------------------------|------------|-----------------------------|---------------------------------|------------|--|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| Blvd. near Kalihi Station to WB 1299+00) | Guideway Column | 3' by 10' | 029 | Guideway Column | 3' by 10' | above) |
| | Station Column | 3' by 10' | 030 | Guideway Column | 3' by 10' | |
| | Station Building | 2' by 20' | 031 | Station Building | 3' by 10' | |
| | Station Building | 2' by 20' | 032 | Station Building | 2' by 20' | |
| | Station Column | 3' by 10' | 033 | Station Column | 3' by 10' | |
| | Station Building | 2' by 20' | 034 | Station Building | 3' by 10' | |
| | Station Building | 2' by 20' | 035 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 036 | Station Building | 3' by 10' | |
| | Station Building | 2' by 20' | 037 | Station Building | 3' by 10' | |
| | Station Building | 2' by 20' | 038 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 039 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 040 | Station Building | 3' by 10' | |
| | Station Column | 3' by 10' | 041 | Station Column | 3' by 10' | |
| | Station Building | 2' by 20' | 042 | Station Building | 2' by 20' | |
| | Guideway Column | 3' by 10' | 043 | Guideway Column | 3' by 10' | |
| | Utility Relocation (Storm Drain CB) | 3' by 10' | 044 | Utility Relocation (Storm Drain | 3' by 10' | Four test excavations proposed and completed; In area of LCAs; |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|--|-------------------------------------|------------|-----------------------------|---|------------|---|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | | | | CB) | | Relatively free of utility constraints; Note extensive testing at Kalihi Station |
| Map E5 (Dillingham Blvd. near Kalihi St. to WB 1309+00) | Guideway Column | 3' by 10' | 045 | Guideway Column | 3' by 10' | Six test excavations proposed and completed; In area of LCAs; Utility line constraints |
| | Guideway Column | 3' by 10' | 046 | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 047 | Guideway Column | 3' by 10' | |
| | Utility Relocation (Storm Drain CB) | 3' by 10' | 048 | Utility Relocation (Electrical Line) | 2' by 20' | |
| | Utility Relocation (Storm Drain CB) | 3' by 10' | 049 | Utility Relocation (Electrical Manhole) | 3' by 10' | |
| | Utility Relocation (Electric Box) | 3' by 10' | 050 | Utility Relocation (Electrical Box) | 3' by 10' | |
| Map E6 (Dillingham Blvd. near McNeil St. to | Utility Relocation (Storm Drain CB) | 3' by 10' | 051 | Utility Relocation (Electrical Manhole) | 2' by 20' | Three test excavations proposed and completed; Utility line constraints for all seven column |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|---|-------------------------------------|------------|-----------------------------|---|------------|---|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| WB 1319+00) | Utility Relocation (Storm Drain CB) | 3' by 10' | 052 | Utility Relocation (Electrical Manhole) | 2' by 20' | foundations |
| | Utility Relocation (Storm Drain CB) | 3' by 10' | 053 | Utility Relocation (Electrical Manhole) | 3' by 10' | |
| Map E7 (Dillingham Blvd. near Waiakamilo Rd. and Colburn St. to WB 1329+00) | Guideway Column | 3' by 10' | 054 | Utility Relocation (Electrical Line) | 2' by 20' | Six test excavations proposed and five test excavations completed; In area of LCAs; Utility line constraints for all seven column foundations |
| | Utility Relocation (Storm Drain CB) | 3' by 10' | 055 | Abandoned | N/A | |
| | Utility Relocation (42" Water) | 2' by 20' | 056 | Utility Relocation (36" Sewer) | 2' by 20' | |
| | Utility Relocation (Storm Drain CB) | 3' by 10' | 057 | Utility Relocation (Electrical Line) | 2' by 20' | |
| | Utility Relocation (Storm Drain CB) | 3' by 10' | 058 | Utility Relocation (42" Water) | 2' by 20' | |
| | Utility Relocation (42" Water) | 2' by 20' | 059 | Utility Relocation | 2' by 20' | |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|---|-------------------------------------|------------|-----------------------------|-------------------------------------|------------|---|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | | | | (Electrical Manhole) | | |
| Map E8 (Dillingham Blvd. west of Kapālama Station to WB 1339+00) | Station Building | 2' by 20' | 060 | Station Building | 2' by 20' | Test excavations at Kapālama Station (see Section 0, above) |
| | Station Building | 2' by 20' | 061 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 062 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 063 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 064 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 065 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 066 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 067 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 068 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 069 | Station Building | 2' by 20' | |
| | Utility Relocation (Storm Drain CB) | 3' by 10' | 070 | Utility Relocation (Storm Drain CB) | 3' by 10' | Three test excavations proposed and completed; Adjacent to Kapālama Stream and an area of |
| | Station Building | 2' by 20' | 071 | Station Building | 3' by 10' | |
| | Utility Relocation (42" Water) | 2' by 20' | 072 | Utility Relocation (42" Water) | 2' by 20' | |
| | Utility Relocation | 2' by 20' | 073 | Utility | 2' by 20' | |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|---|--------------------------------|------------|-----------------------------|---|------------|--|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | (42" Water) | | | Relocation (Electrical Line) | | LCAs; Utility line constraints; Note extensive testing at Kapālama Station |
| Map E9 (Dillingham Blvd. near Ala Kawa St. to WB 1349+00) | Utility Relocation (36" Sewer) | 2' by 20' | 074 | Utility Relocation (Electrical Manhole) | 2' by 20' | Seven test excavations proposed and completed; Dense area of LCAs; Utility line constraints for all seven column foundations |
| | Utility Relocation (36" Sewer) | 2' by 20' | 075 | Utility Relocation (36" Sewer) | 2' by 20' | |
| | Utility Relocation (36" Sewer) | 2' by 20' | 076 | Utility Relocation (Electrical Line) | 2' by 20' | |
| | Utility Relocation (36" Sewer) | 2' by 20' | 077 | Utility Relocation (36" Sewer) | 2' by 20' | |
| | Utility Relocation (8" Sewer) | 2' by 20' | 078 | Utility Relocation (8" Sewer) | 2' by 20' | |
| | Guideway Column | 3' by 10' | 079 | Utility Relocation (Electrical Line) | 2' by 20' | |
| | Utility Relocation | 3' by 10' | 080 | Utility Relocation (36" | 2' by 20' | |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|---|--------------------------------------|------------|-----------------------------|---|------------|--|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | (Storm Drain CB) | | | Sewer) | | |
| Map E10 (Dillingham Blvd. just west of Iwilei Station to WB 1358+00) | Utility Relocation (Storm Drain CB) | 3' by 10' | 081 | Utility Relocation (Electrical Manhole) | 2' by 20' | Eight test excavations proposed and completed; Dense area of LCAs; Former Kūwili Fishpond at SE end; Utility line constraints for two other column foundations |
| | Guideway Column | 3' by 10' | 082 | Utility Relocation (Electrical Line) | 3' by 10' | |
| | Utility Relocation (Tel Com Manhole) | 2' by 20' | 083 | Utility Relocation (Tel Com Manhole) | 2' by 20' | |
| | Guideway Column | 3' by 10' | 084 | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 085 | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 086 | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 087 | Guideway Column | 3' by 10' | |
| Map G11 (Dillingham Blvd. just east of Iwilei Station to WB 1381+00) | Guideway Column | 3' by 10' | 088 | Station Column | 3' by 10' | Test excavations at Iwilei Station (see Section 0, above) |
| | Station Building | 2' by 20' | 089 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 090 | Station Building | 2' by 20' | |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|--|--|------------|-----------------------------|----------------------------------|------------|---|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | Station Building | 2' by 20' | 091 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 092 | Station Building | 2' by 20' | |
| | Guideway Column | 3' by 10' | 093 | Guideway Column | 3' by 10' | Mostly within former Kūwili Fishpond All eight relatively free of utility constraints |
| | Guideway Column | 3' by 10' | 094 | Guideway Column | 3' by 10' | |
| Map G12 (Nimitz Hwy. near Iwilei Rd. and the west side of Nu'uanu Stream to WB 1391+00) | Guideway Column | 3' by 10' | 095 | Guideway Column | 3' by 10' | One test excavation proposed and completed; Adjacent to N side of Nu'uanu Stream Utility line constraints for other foundations and/or in Kawa or Kūwili Fishponds |
| Map G13 (Nimitz Hwy. on the east side of Nu'uanu Stream near the Chinatown Station to WB 1401+00) | Station Building | 2' by 20' | 096 | Station Building | 2' by 20' | Test excavations at Chinatown Station (see Section 0, above) |
| | Station Building | 4' by 20' | 097 | Station Building | 4' by 20' | |
| | Station Building | 2' by 20' | 098 | Station Building | 2' by 20' | |
| | Station Building | 4' by 20' | 099 | Station Building | 4' by 20' | |
| | Station Building | 4' by 20' | 100 | Station Building | 4' by 20' | |
| | Station Building | 4' by 20' | 101 | Station Building | 4' by 20' | |
| | <i>Utility Relocation (Fiber Optic Line)</i> | 2' by 20' | 102 | Utility Relocation (Fiber Optic) | 2' by 20' | Four test excavations proposed and five test |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|---|---------------------------------------|------------|-----------------------------|---|------------|---|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | | | | Line) | | excavations completed; Adjacent to S side of Nu‘uanu Stream; Area of LCAs; Former shoreline |
| | Utility Relocation (Electric Manhole) | 2' by 20' | 103 | Utility Relocation (Electrical Manhole) | 2' by 20' | |
| | Utility Relocation (Fiber Optic Line) | 2' by 20' | 104 | Utility Relocation (Fiber Optic Line) | 2' by 20' | |
| | N/A | N/A | 104A | Utility Relocation (Fiber Optic Line) | 2' by 20' | |
| | Guideway Column | 3' by 10' | 105 | Utility Relocation (Electrical Manhole) | 2' by 20' | |
| Map G14 (Nimitz Hwy. north of the Downtown Station near Nu‘uanu Ave. and Bethel St. to WB 1411) | Utility Relocation (Electric Manhole) | 2' by 20' | 106 | Utility Relocation (Electrical Line) | 2' by 20' | Five test excavations proposed and completed; Dense area of LCAs; Major utility constraints |
| | Utility Relocation (Electric Line) | 2' by 20' | 107 | Utility Relocation (Electrical Line) | 2' by 20' | |
| | Guideway | 3' by 10' | 108 | Guideway | 2' by 20' | |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|--|---------------------------------------|------------|-----------------------------|---|------------|--|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | Column | | | Column | | |
| | Utility Relocation (Electric Manhole) | 2' by 20' | 109 | Utility Relocation (Electrical Manhole) | 2' by 20' | |
| | Guideway Column | 3' by 10' | 110 | Utility Relocation (Electrical Line) | 2' by 20' | |
| Map G15 (Nimitz Hwy. near the Downtown Station to WB 1420) | Utility Relocation (Electric Line) | 2' by 20' | 111 | Utility Relocation (Electrical Line) | 2' by 20' | Three test excavations proposed and four completed; Dense area of LCAs; Former shoreline extended well inland; Note testing at Downtown Station |
| | N/A | N/A | 111A | Utility Relocation (Electrical Line) | 2' by 20' | |
| | Utility Relocation (Electric Line) | 2' by 20' | 112 | Utility Relocation (Electrical Line) | 2' by 20' | |
| | Utility Relocation (Electric Line) | 2' by 20' | 113 | Utility Relocation (Electrical Line) | 2' by 20' | |
| | Station Building | 2' by 20' | 114 | Station Building | 3' by 10' | Test excavations at Downtown Station (see Section 0, above) |
| | Station Column | 2' by 20' | 115 | Station Column | 2' by 20' | |
| Map G16 (Nimitz Hwy. | Utility Relocation (Tel Com | 2' by 20' | 116 | Utility Relocation (Tel | 2' by 20' | Five test excavations |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|---|---------------------------------------|------------|-----------------------------|---|------------|--|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| and Halekauwila St. southeast of the Downtown Station near Mililani St. to WB 1429) | Manhole) | | | Com Manhole) | | proposed and eight test excavations completed; Area of LCAs; Major utility constraints; Note testing at Downtown Station |
| | Guideway Column | 2' by 20' | 117 | Guideway Column | 2' by 20' | |
| | Utility Relocation (Tel Com Manhole) | 2' by 20' | 118 | Utility Relocation (Tel Com Manhole) | 2' by 20' | |
| | Guideway Column | 3' by 10' | 119 | Guideway Column | 3' by 10' | |
| | N/A | N/A | 119A | Utility Relocation (Electrical Line) | 3' by 10' | |
| | Guideway Column | 3' by 10' | 120 | Utility Relocation (Electrical Manhole) | 2' by 20' | |
| | N/A | N/A | 120A | Utility Relocation (Electrical Line) | 2' by 20' | |
| | N/A | N/A | 120B | Utility Relocation (Electrical Line) | 3' by 10' | |
| Map G17 (Halekauwila St. at Punchbowl | Utility Relocation (Fiber Optic Line) | 2' by 20' | 121 | Utility Relocation (Fiber Optic | 2' by 20' | Seven test excavations proposed and eight test |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|---|---------------------------------------|------------|-----------------------------|---|------------|--|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| and South Sts., northwest of the Civic Center Station to WB 1438) | | | | Line) | | excavations; Major utility constraints; Note extensive testing at Civic Center Station |
| | Guideway Column | 3' by 10' | 122 | Guideway Column | 3' by 10' | |
| | N/A | N/A | 122A | Utility Relocation (Electrical Line) | 3' by 10' | |
| | Guideway Column | 3' by 10' | 123 | Guideway Column | 3' by 10' | |
| | Utility Relocation (8" Water) | 2' by 20' | 124 | Utility Relocation (8" Water) | 2' by 20' | |
| | Utility Relocation (8" Water) | 2' by 20' | 125 | Utility Relocation (8" Water) | 2' by 20' | |
| | Utility Relocation (Electric Manhole) | 2' by 20' | 126 | Utility Relocation (Electrical Manhole) | 2' by 20' | |
| | Guideway Column | 3' by 10' | 127 | Guideway Column | 3' by 10' | |
| Map G18 (Halekauwila St. in the vicinity of the Civic Center | Guideway Column | 3' by 10' | 128 | Guideway Column | 3' by 10' | Ten test excavations proposed and 11 test excavations completed; Area of LCAs; |
| | Guideway | 3' by 10' | 129 | Guideway | 3' by 10' | |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|--|---------------------------------------|------------|-----------------------------|---|------------|---|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| Station to WB 1448) | Column | | | Column | | Burials reported in vicinity; Significant utility constraints; Note extensive testing at Civic Center Station |
| | Station Building | 2' by 20' | 130 | Station Building | 2' by 20' | Test excavations at Civic Center Station (see Section 0, above) |
| | Station Column | 3' by 10' | 131 | Station Column | 3' by 10' | |
| | Station Building | 2' by 20' | 132 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 133 | Station Building | 2' by 20' | |
| | Station Column | 3' by 10' | 134 | Station Column | 3' by 10' | |
| | Station Building | 2' by 20' | 135 | Abandoned | N/A | |
| | Station Column | 3' by 10' | 136 | Station Column | 2' by 20' | |
| | Station Column | 3' by 10' | 137 | Station Column | 3' by 10' | |
| | Station Building | 2' by 20' | 138 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 139 | Station Building | 2' by 20' | |
| | Utility Relocation (Electric Manhole) | 2' by 20' | 140 | Utility Relocation (Electrical Manhole) | 2' by 20' | Ten test excavations proposed and 11 test excavations completed; Area of LCAs; |
| | Guideway Column | 3' by 10' | 141 | Guideway Column | 3' by 10' | Burials reported in vicinity; Significant utility constraints; |
| | Utility Relocation | 2' by 20' | 142 | Utility | 2' by 20' | Note extensive testing at |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|--|---------------------------------------|------------|-----------------------------|---|------------|---|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | (Electric Manhole) | | | Relocation (Electrical Manhole) | | Civic Center Station |
| | Guideway Column | 3' by 10' | 143 | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 144 | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 145 | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 146 | Guideway Column | 3' by 10' | |
| | N/A | N/A | 146A | Guideway Column | 3' by 10' | |
| | Utility Relocation (Electric Manhole) | 2' by 20' | 147 | Utility Relocation (Electrical Manhole) | 2' by 20' | |
| Map G19 (Halekauwila St. between Cooke and Kamani Sts. to WB 1458) | Guideway Column | 3' by 10' | 148 | Guideway Column | 3' by 10' | Nine test excavations proposed and 11 test excavations completed; Area of LCAs; Burials reported in vicinity; Major utility constraints |
| | N/A | N/A | 148A | Guideway Column | 3' by 8' | |
| | Utility Relocation (Electric Manhole) | 2' by 20' | 149 | Utility Relocation (Electrical) | 2' by 20' | |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|--|--------------------------------------|------------|-----------------------------|--------------------------------------|------------|----------|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | | | | Manhole) | | |
| | Utility Relocation (24" Storm Drain) | 2' by 20' | 150 | Utility Relocation (24" Storm Drain) | 2' by 20' | |
| | Utility Relocation (8" Sewer) | 2' by 20' | 151 | Utility Relocation (8" Sewer) | 2' by 20' | |
| | | | 151A | Utility Relocation (8" Sewer) | 2' by 20' | |
| | Utility Relocation (8" Sewer) | 2' by 20' | 152 | Utility Relocation (8" Sewer) | 2' by 20' | |
| | Utility Relocation (8" Sewer) | 2' by 20' | 153 | Utility Relocation (8" Sewer) | 2' by 20' | |
| | Utility Relocation (8" Sewer) | 2' by 20' | 154 | Utility Relocation (8" Sewer) | 2' by 20' | |
| | Utility Relocation (6" Sewer) | 2' by 20' | 155 | Utility Relocation (6" Sewer) | 2' by 20' | |
| | Utility Relocation (6" Sewer) | 2' by 20' | 156 | Utility Relocation (6" Sewer) | 2' by 20' | |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|---|---------------------------------------|------------|-----------------------------|---|------------|---|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | | | | Sewer) | | |
| Map G20 (Kaka'ako Station vicinity to WB 1468) | Utility Relocation (Electric Manhole) | 2' by 20' | 157 | Utility Relocation (Electrical Manhole) | 3' by 10' | Seven test excavations proposed and eight test excavations completed; Relatively free of utility constraints, but existing buildings over eastern portion; Note extensive testing at Kaka'ako Station |
| | Guideway Column | 3' by 10' | 158 | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 159 | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 160 | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 161 | Guideway Column | 3' by 10' | |
| | Station Column | 3' by 10' | 162 | Station Column | 3' by 10' | Test excavations at Kaka'ako Station (see Section 0, above) |
| | Station Building | 2' by 20' | 163 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 164 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 165 | Station Building | 2' by 20' | |
| | Station Column | 3' by 10' | 166 | Station Column | 3' by 10' | |
| | Station Building | 2' by 20' | 167 | Station Column | 3' by 10' | |
| | Station Building | 2' by 20' | 168 | Station Building | 2' by 20' | |
| | N/A | N/A | 168A | Station Building | 3' by 10' | |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|---|----------------------------------|------------|-----------------------------|--------------------------------------|------------|---|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | N/A | N/A | 168B | Station Building | 2' by 20' | Seven test excavations proposed and eight test excavations completed; Relatively free of utility constraints, but existing buildings over eastern portion; Note extensive testing at Kaka'ako Station |
| | Station Building | 2' by 20' | 169 | Station Column | 3' by 10' | |
| | Station Column | 2' by 20' | 170 | Guideway Column | 3' by 10' | |
| | N/A | N/A | 170 A | Guideway Column | 4' by 8' | |
| | Guideway Column | 3' by 10' | 171 | Guideway Column | 3' by 10' | |
| Map G21(Queen Street and Kamake'e Street vicinity to WB 1478) | Guideway Column | 3' by 10' | 172 | Guideway Column | 3' by 10' | Eight test excavations proposed and 12 test excavations completed; Relatively free of utility constraints, but extant building constraints |
| | N/A | N/A | 172A | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 173 | Guideway Column | 3' by 10' | |
| | Utility Relocation (Tel Com Box) | 2' by 20' | 174 | Utility Relocation (Tel Com Box) | 2' by 20' | |
| | N/A | N/A | 174A | Utility Relocation (Electrical Line) | 2' by 15' | |
| | Guideway Column | 3' by 10' | 175 | Guideway Column | 3' by 10' | |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|--|--------------------------------------|------------|-----------------------------|--------------------------------------|------------|---|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | N/A | N/A | 175A | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 176 | Guideway Column | 2' by 10' | |
| | Guideway Column | 3' by 10' | 177 | Guideway Column | 2' by 10' | |
| | Guideway Column | 3' by 10' | 178 | Guideway Column | 3' by 10' | |
| | N/A | N/A | 178A | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 179 | Guideway Column | 3' by 10' | |
| Map G22 (Queen Street/Waimanu Street intersection vicinity to WB 1488) | Guideway Column | 3' by 10' | 180 | Guideway Column | 3' by 10' | 10 test excavations proposed and completed; Burials reported in vicinity; Significant utility constraints; *T-195 moved from Map G23 to G22 |
| | Guideway Column | 3' by 10' | 181 | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 182 | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 183 | Guideway Column | 3' by 10' | |
| | Utility Relocation (Tel Com Manhole) | 2' by 20' | 184 | Utility Relocation (Tel Com Manhole) | 2' by 20' | |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|---|---|------------|-----------------------------|---|-------------|---|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | Utility Relocation (Electric Manhole) | 2' by 20' | 185 | Utility Relocation (Electrical Manhole) | 2' by 20' | |
| | Utility Relocation (Tel Com Manhole) | 2' by 20' | 186 | Utility Relocation (Tel Com Manhole) | 2' by 20' | |
| | Guideway Column | 3' by 10' | 187 | Guideway Column | 3' by 10' | |
| | Guideway Column (offset) | 3' by 10' | 188 | Guideway Column (offset) | 3' by 10' | |
| | Utility Relocation (Electric Transformer) | 2' by 20' | 195* | Utility Relocation (TPSS) | 3' by 10' | |
| Map G23 (Kona Street in the vicinity of Pensacola and Pi'ikoi Streets to WB 1498) | Guideway Column | 3' by 10' | 189 | Guideway Column | 3' by 10' | 11 test excavations proposed and completed; Significant building and utility constraints; *T-195 moved to Map G22 |
| | Utility Relocation (Electric Manhole) | 2' by 20' | 190 | Utility Relocation (Electrical Manhole) | 2' by 20' | |
| | Utility Relocation (Electric Manhole) | 2' by 20' | 191 | Utility Relocation (Electrical Manhole) | 2' by 12.5' | |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|---|--------------------------------------|------------|-----------------------------|--------------------------------------|------------|--|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | Utility Relocation (8" Water) | 3' by 10' | 192 | Utility Relocation (8" Water) | 3' by 10' | |
| | Utility Relocation (8" Water) | 2' by 20' | 193 | Utility Relocation (Electrical Line) | 2' by 20' | |
| | Guideway Column | 3' by 10' | 194 | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 196 | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 197 | Guideway Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 198 | Guideway Column | 3' by 10' | |
| | Utility Relocation (24" Storm Drain) | 2' by 20' | 199 | Utility Relocation (24" Storm Drain) | 2' by 20' | |
| Map G24 (Kona Street just northwest of Ala Moana Center to end) | Utility Relocation (24" Storm Drain) | 2' by 20' | 200 | Utility Relocation (24" Storm Drain) | 2' by 20' | Ten test excavations proposed and seven test excavations completed; Significant building and utility constraints; Note extensive testing at Ala Moana Center Station |
| | Guideway Column | 3' by 10' | 201 | Guideway Column | 3' by 10' | |
| | Utility Relocation (24" Storm Drain) | 2' by 20' | 202 | Utility Relocation (24" Storm Drain) | 2' by 20' | |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|--|--------------------------------------|------------|-----------------------------|--------------------------------------|------------|--|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | N/A | N/A | 202A | Utility Relocation (24" Storm Drain) | 2' by 20' | Test excavations at Ala Moana Center Station (see Section 0, above) |
| | Guideway Column | 3' by 10' | 203 | Guideway Column | 3' by 10' | |
| | Utility Relocation (24" Storm Drain) | 2' by 20' | 204 | Utility Relocation (24" Storm Drain) | 2' by 20' | |
| | Guideway Column | 3' by 10' | 205 | Station Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 206 | Station Column | 3' by 10' | |
| | Guideway Column | 3' by 10' | 207 | Station Column | 3' by 10' | |
| | Station Column | 3' by 10' | 208 | Station Column | 3' by 10' | |
| | Station Column | 3' by 10' | 209 | Station Column | 3' by 10' | |
| | Station Building | 2' by 20' | 210 | Station Building | 2' by 20' | |
| | Station Building | 2' by 20' | 211 | Station Building | 2' by 20' | |
| | Station Column | 3' by 10' | 212 | Station Column | 3' by 10' | |
| | Station Column | 3' by 10' | 213 | Guideway Column | 3' by 10' | Ten test excavations proposed and seven test excavations completed; Significant building and |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|--|--------------------------------|------------|-----------------------------|--------------------------------------|------------|--|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | | | | | | utility constraints; Note extensive testing at Ala Moana Center Station |
| | Station Building | 2' by 20' | 214 | Station Building | 2' by 20' | Test excavations at Ala Moana Center Station (see Section 0, above) |
| | Station Building | 2' by 20' | 215 | Abandoned | N/A | |
| | Station Column | 3' by 10' | 216 | Abandoned | N/A | Ten test excavations proposed and seven test excavations completed; Significant building and utility constraints; Note extensive testing at Ala Moana Center Station |
| | Station Column | 3' by 10' | 217 | Station Column | 3' by 10' | Test excavations at Ala Moana Center Station (see Section 0, above) |
| | Station Column | 3' by 10' | 218 | Station Column | 3' by 10' | |
| | Station Column | 3' by 10' | 219 | Station Column | 3' by 10' | |
| | Station Platform | 3' by 10' | 220 | Station Building | 2' by 20' | |
| | Station Platform | 3' by 10' | 221 | Utility Relocation (Electrical Line) | 2' by 20' | |
| | Station Building | 2' by 20' | 222 | Utility Relocation (Electrical Line) | 2' by 20' | |
| | Station Building | 2' by 20' | 223 | Abandoned | N/A | Ten test excavations |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|--|------------------------------------|------------|-----------------------------|---|------------|---|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | Station Building | 2' by 20' | 224 | Abandoned | N/A | proposed and seven test excavations completed; Significant building and utility constraints; Note extensive testing at Ala Moana Center Station |
| | Station Platform | 3' by 10' | 225 | Abandoned | N/A | |
| Map P1 (Punchbowl Street makai of Pohukaina Street) | Utility Relocation (Electric Line) | 2' by 20' | 226 | Utility Relocation (Electrical Line) | 2' by 20' | Three test excavations proposed and 10 test excavations completed; Utility relocations only |
| | N/A | N/A | 226A | Utility Relocation (Electrical Line) | 2' by 20' | |
| | N/A | N/A | 226B | Utility Relocation (Electrical Manhole) | 2' by 20' | |
| | N/A | N/A | 226C | Utility Relocation (Electrical Manhole) | 2' by 20' | |
| | N/A | N/A | 226D | Utility Relocation (Electrical Manhole) | 2' by 20' | |
| | Utility Relocation (Electric | 2' by 20' | 227 | Utility Relocation (Electrical | 2' by 20' | |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|---|---------------------------------------|------------|-----------------------------|---|------------|---|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | Manhole) | | | Manhole) | | |
| | N/A | N/A | 227A | Utility Relocation (Electrical Manhole) | 2' by 20' | |
| | N/A | N/A | 227B | Utility Relocation (Electrical Manhole) | 2' by 20' | |
| | N/A | N/A | 228A | Utility Relocation (Electrical line) | 2' by 20' | |
| Map P2 (Pohukaina Street near South Street) | Utility Relocation (Electric Manhole) | 2' by 20' | 228 | Utility Relocation (Electrical Manhole) | 2' by 20' | Two test excavations proposed and completed; Utility relocations only |
| | Utility Relocation (Electric Line) | 2' by 20' | 229 | Utility Relocation (Electrical Line) | 2' by 20' | |
| Map P3 (Pohukaina Street near Keawe Street, Coral Street, and Cooke Street) | Utility Relocation (Electric Manhole) | 2' by 20' | 230 | Utility Relocation (Electrical Manhole) | 2' by 20' | Three test excavations proposed and five test excavations completed; Utility relocations only |
| | Utility Relocation (Electric Manhole) | 2' by 20' | 231 | Utility Relocation (Electrical | 2' by 20' | |

| Construction Sheet #/ Portion of Route | Proposed AISP Testing Location | | Actual AIS Testing Location | | | Comments |
|--|---------------------------------------|------------|-----------------------------|---|------------|----------|
| | Excavation Type | Dimensions | Test Excavation # | Excavation Type | Dimensions | |
| | | | | Manhole) | | |
| | N/A | N/A | 232A | Utility Relocation (Electrical Line) | 2' by 20' | |
| | Utility Relocation (Electric Manhole) | 2' by 20' | 232 | Utility Relocation (Electrical Manhole) | 2' by 20' | |
| | N/A | N/A | 232A | Utility Relocation (Electrical Line) | 2' by 20' | |

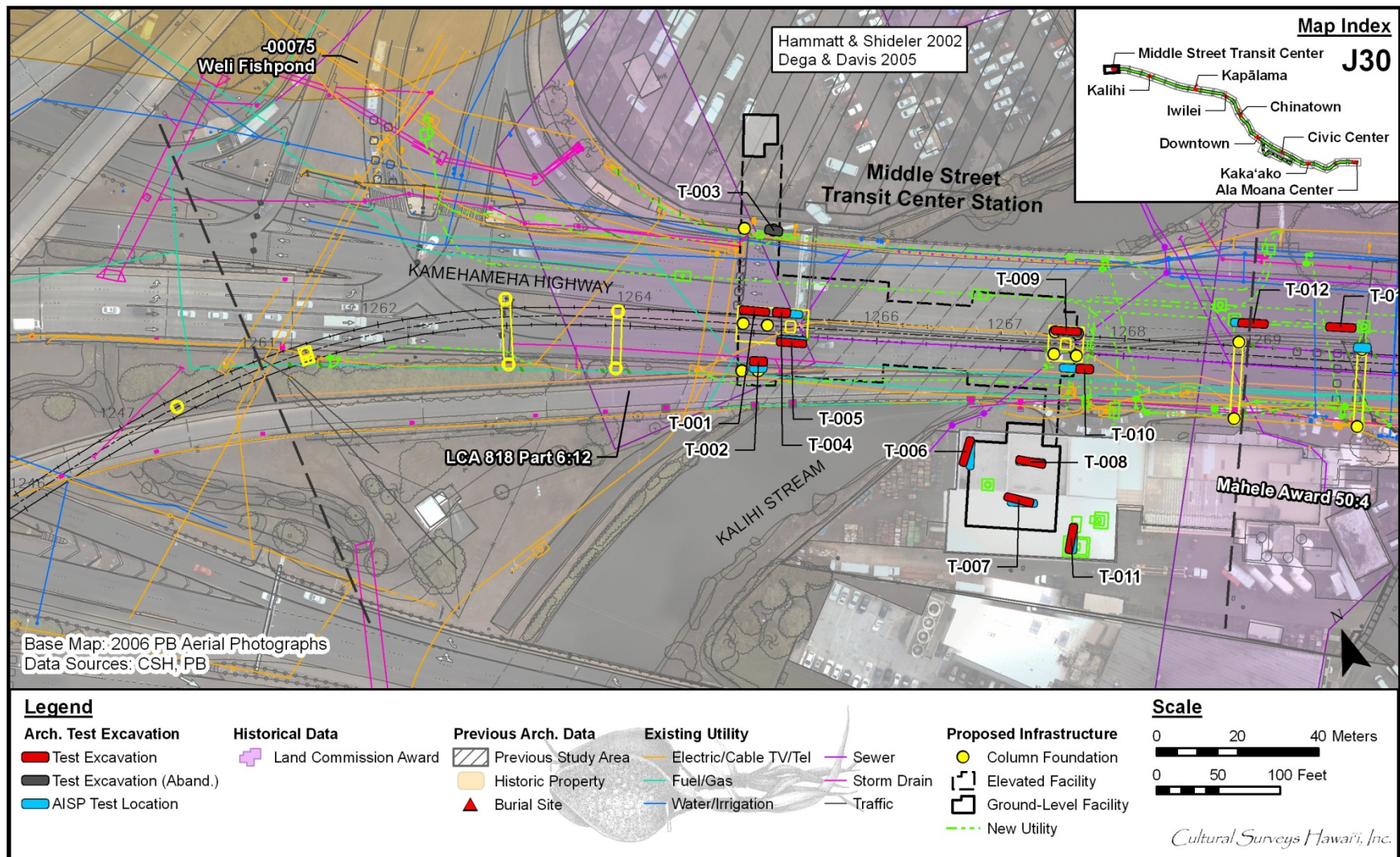


Figure 85. Map J30 (Kamehameha Highway in the immediate vicinity of the Middle Street Transit Center Station) showing locations of proposed AISP and actual AIS test excavations (see also detailed Middle Street Transit Center Station figures, above)

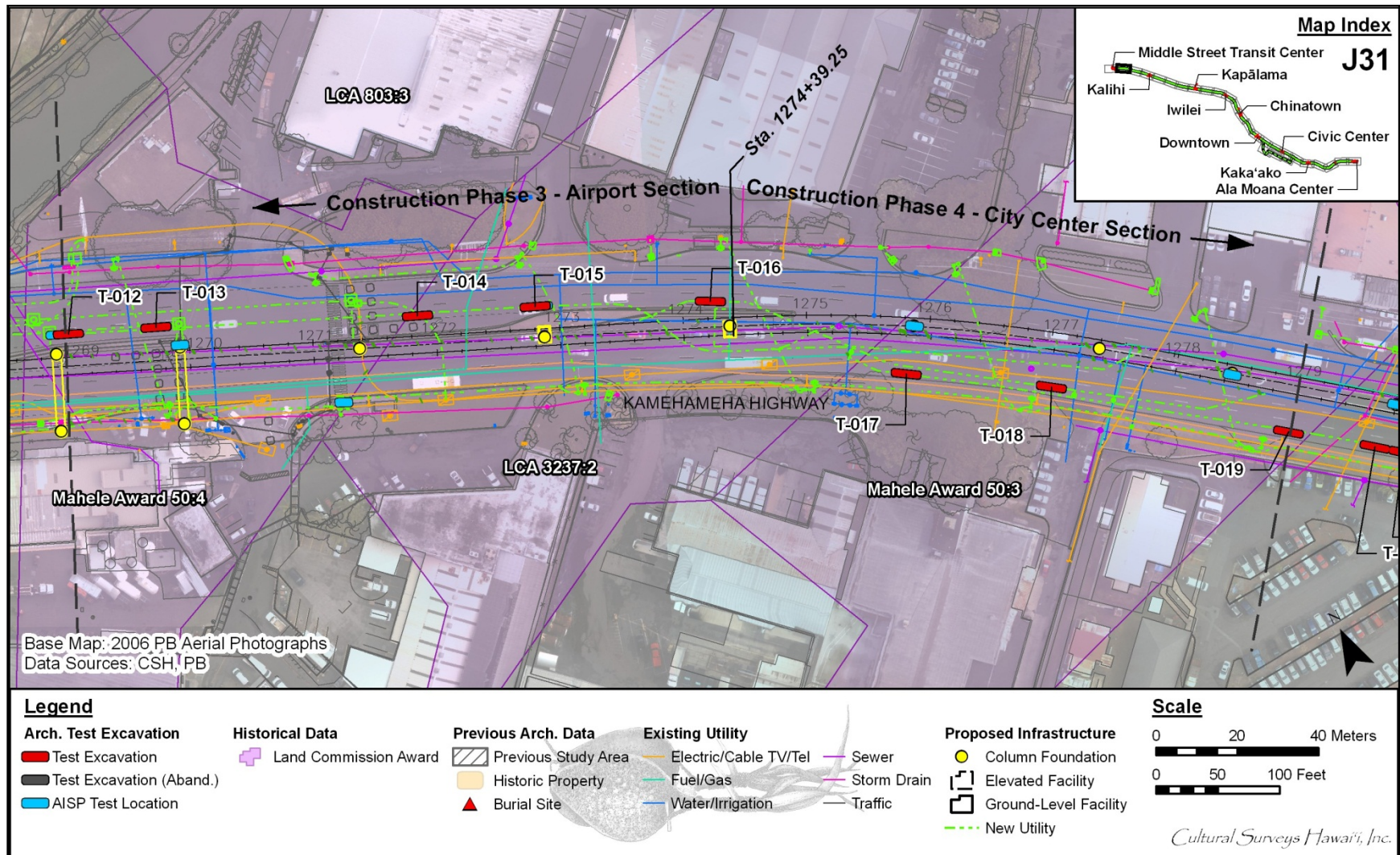


Figure 86. Map J31 (Kamehameha Highway east of Middle Street Transit Center Station) showing locations of proposed AISP and actual AIS test excavations

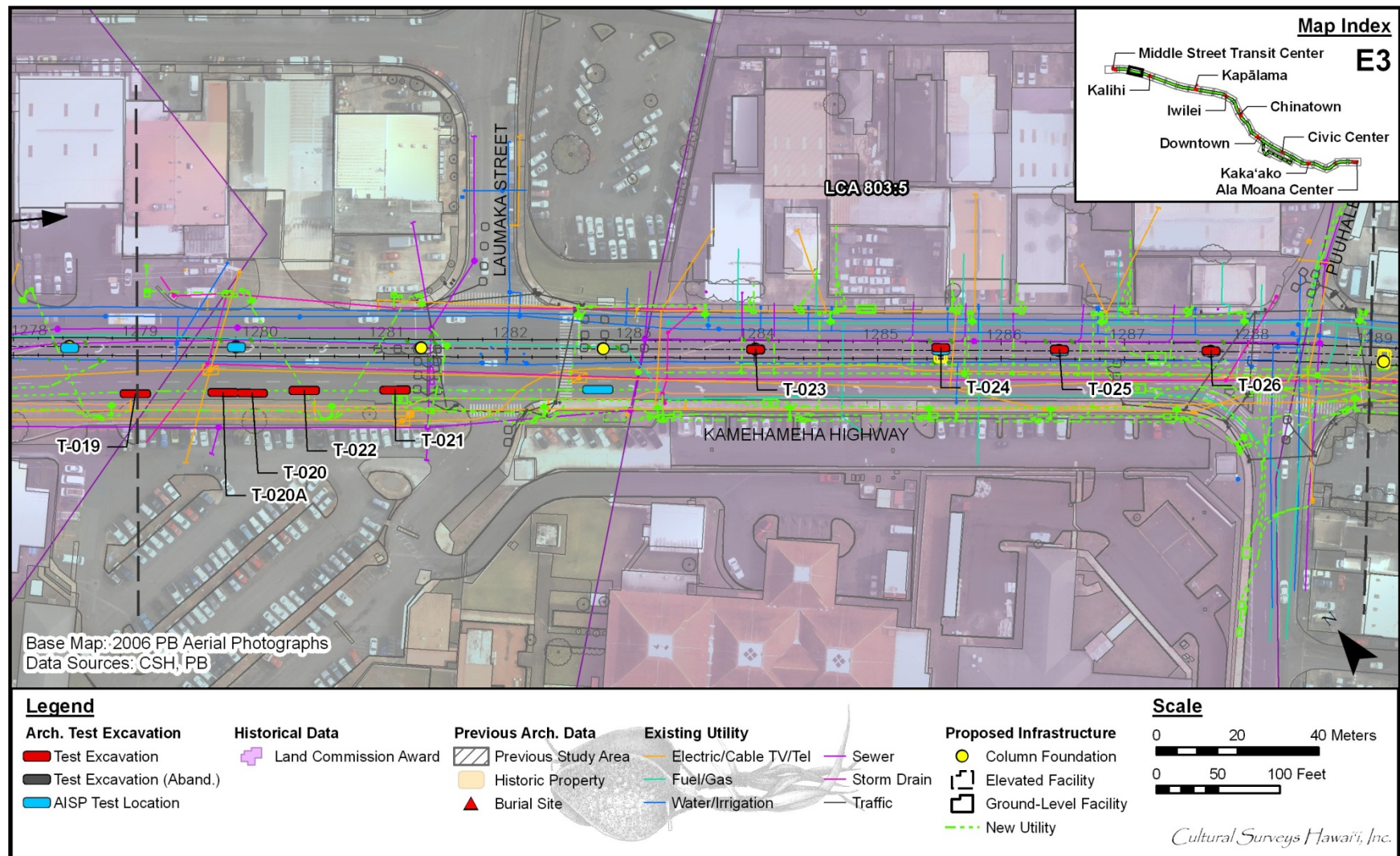


Figure 87. Map E3 (Dillingham Boulevard near Laumaka Street) showing locations of proposed AISP and actual AIS test excavations

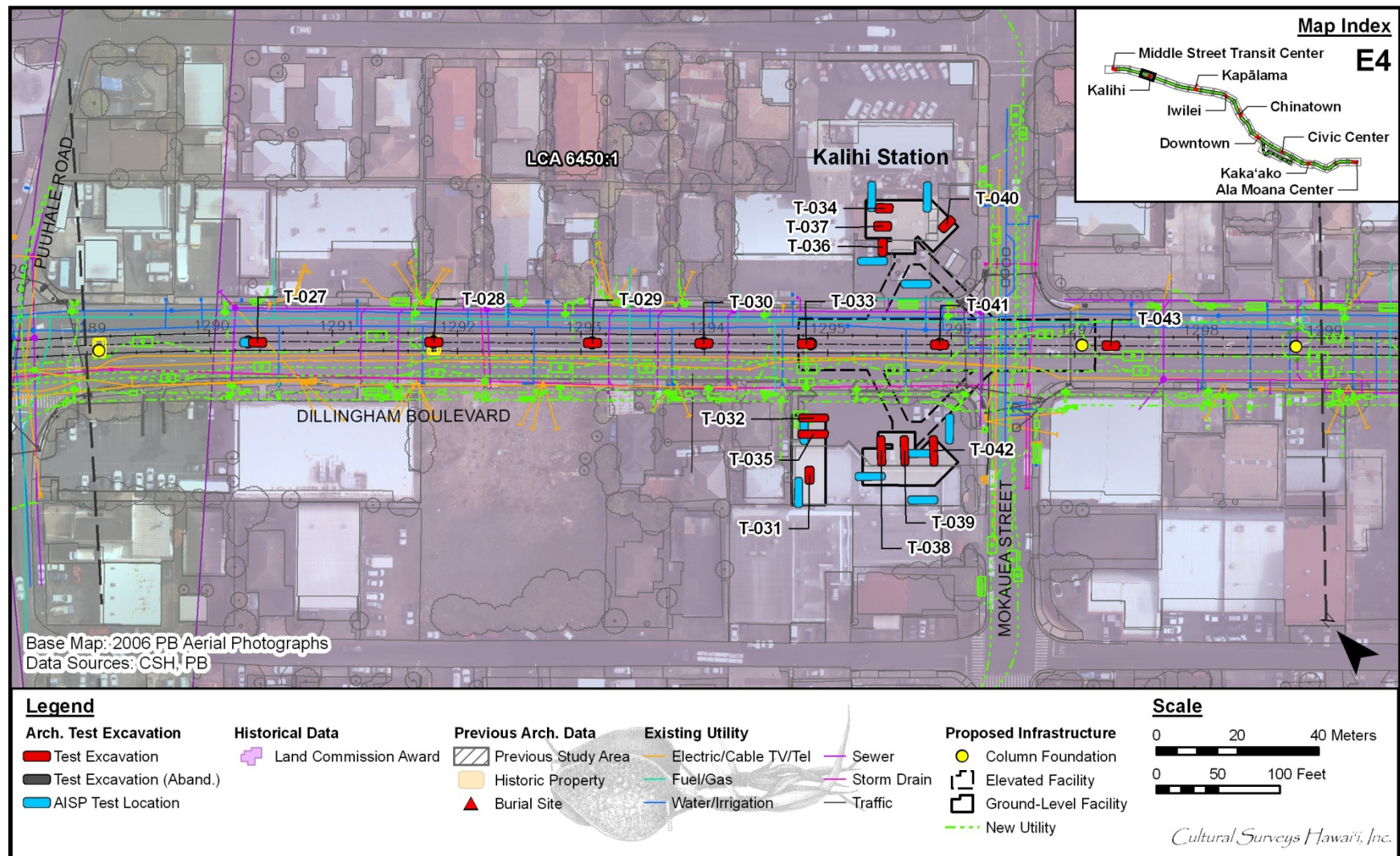


Figure 88. Map E4 (Dillingham Boulevard near Kalihi Station) showing locations of proposed AISP and actual AIS test excavations (see also detailed Kalihi Station figures, above)

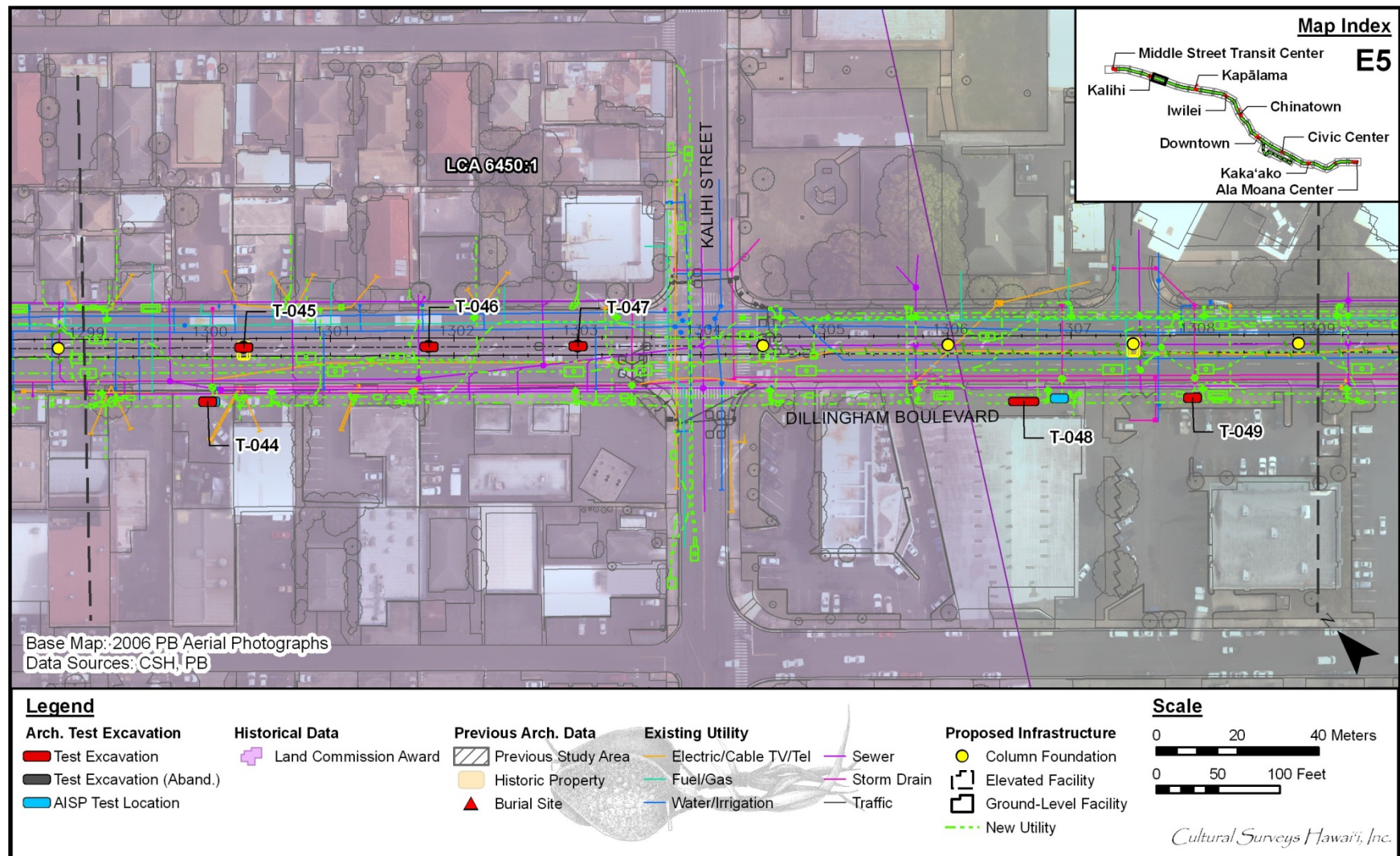


Figure 89. Map E5 (Dillingham Boulevard near Kalihi Street) showing locations of proposed AISP and actual AIS test excavations

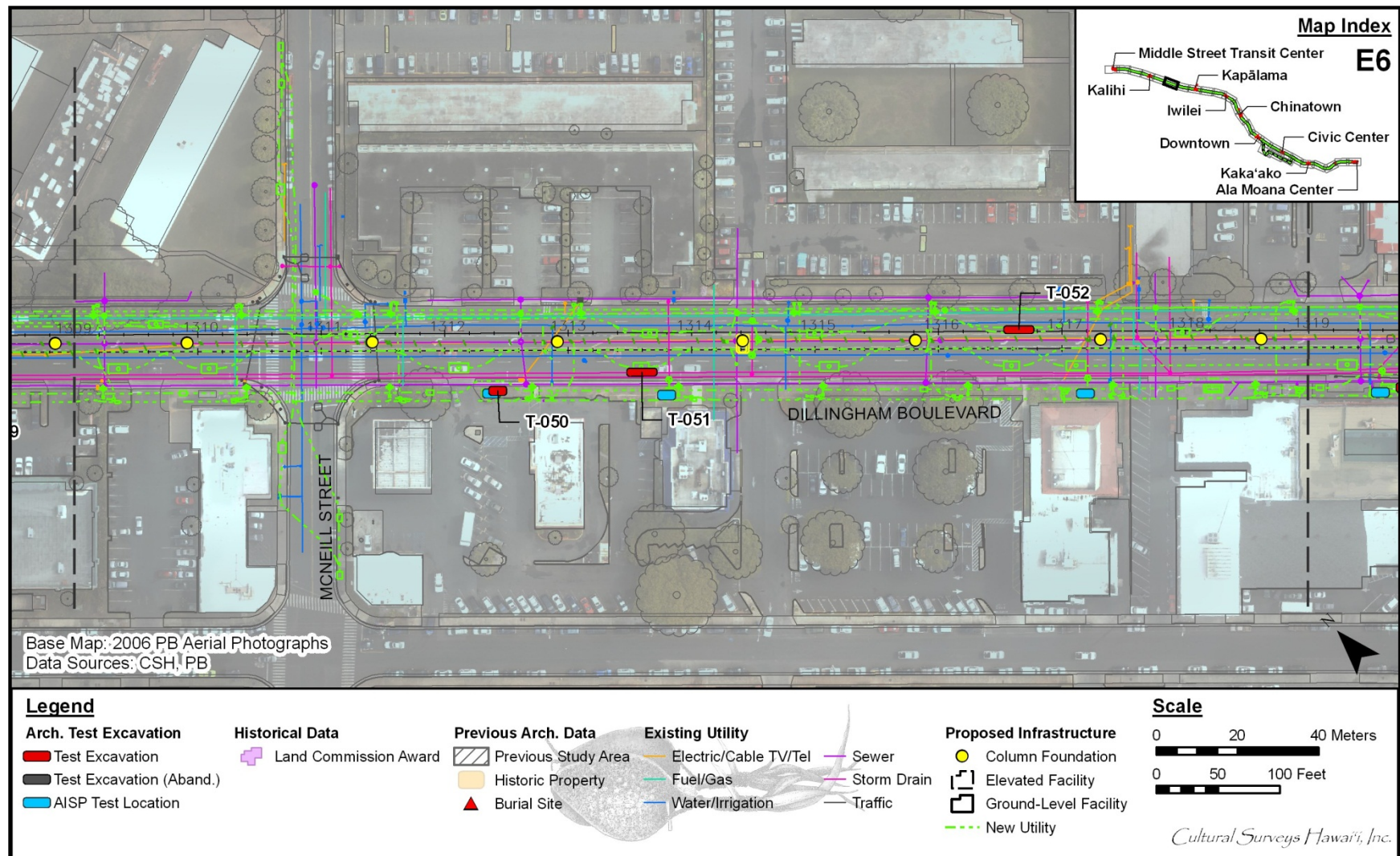


Figure 90. Map E6 (Dillingham Boulevard near McNeill Street) showing locations of proposed AISP and actual AIS test excavations

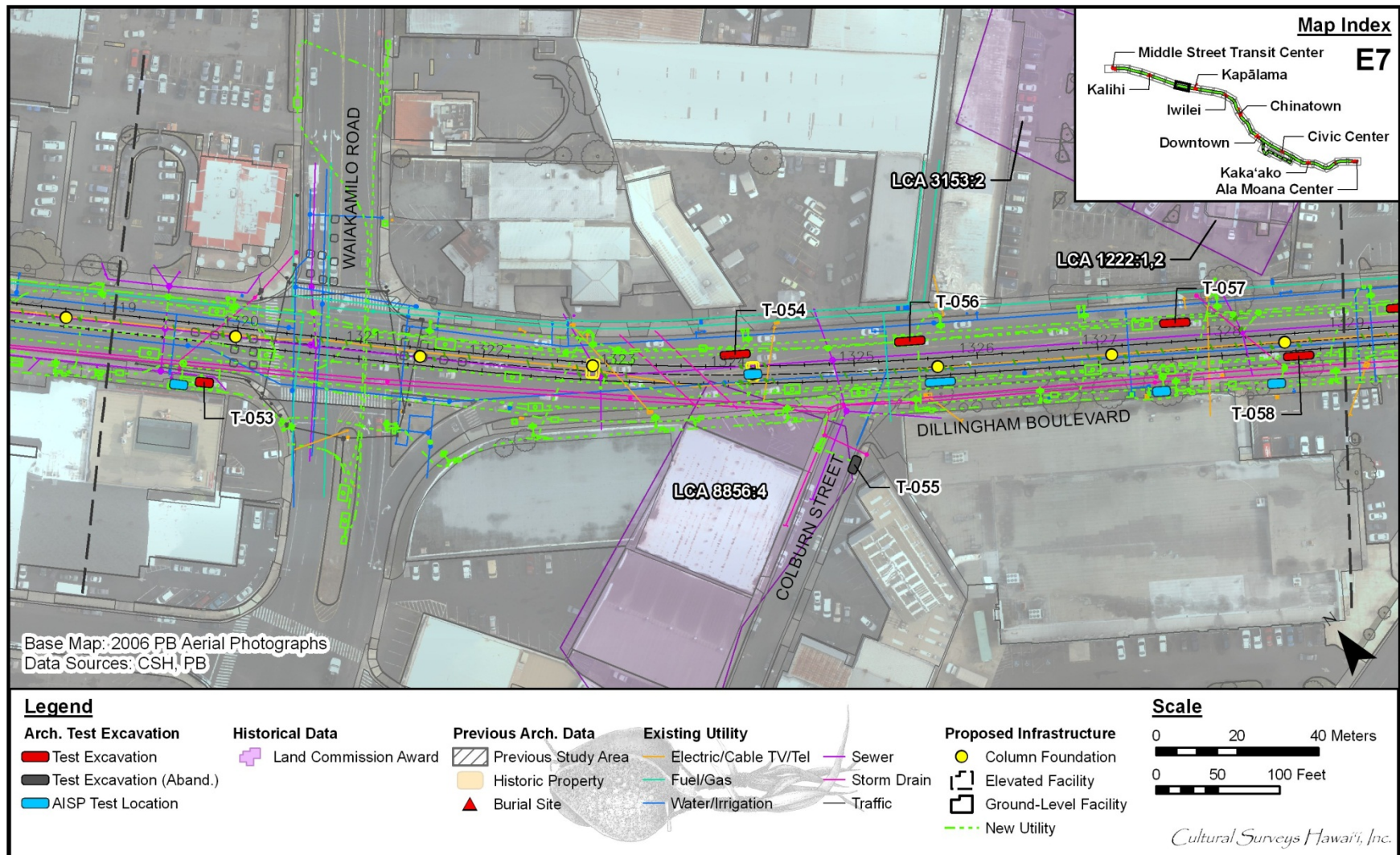


Figure 91. Map E7 (Dillingham Boulevard near Waiakamilo Road showing locations of proposed AISP and actual AIS test excavations

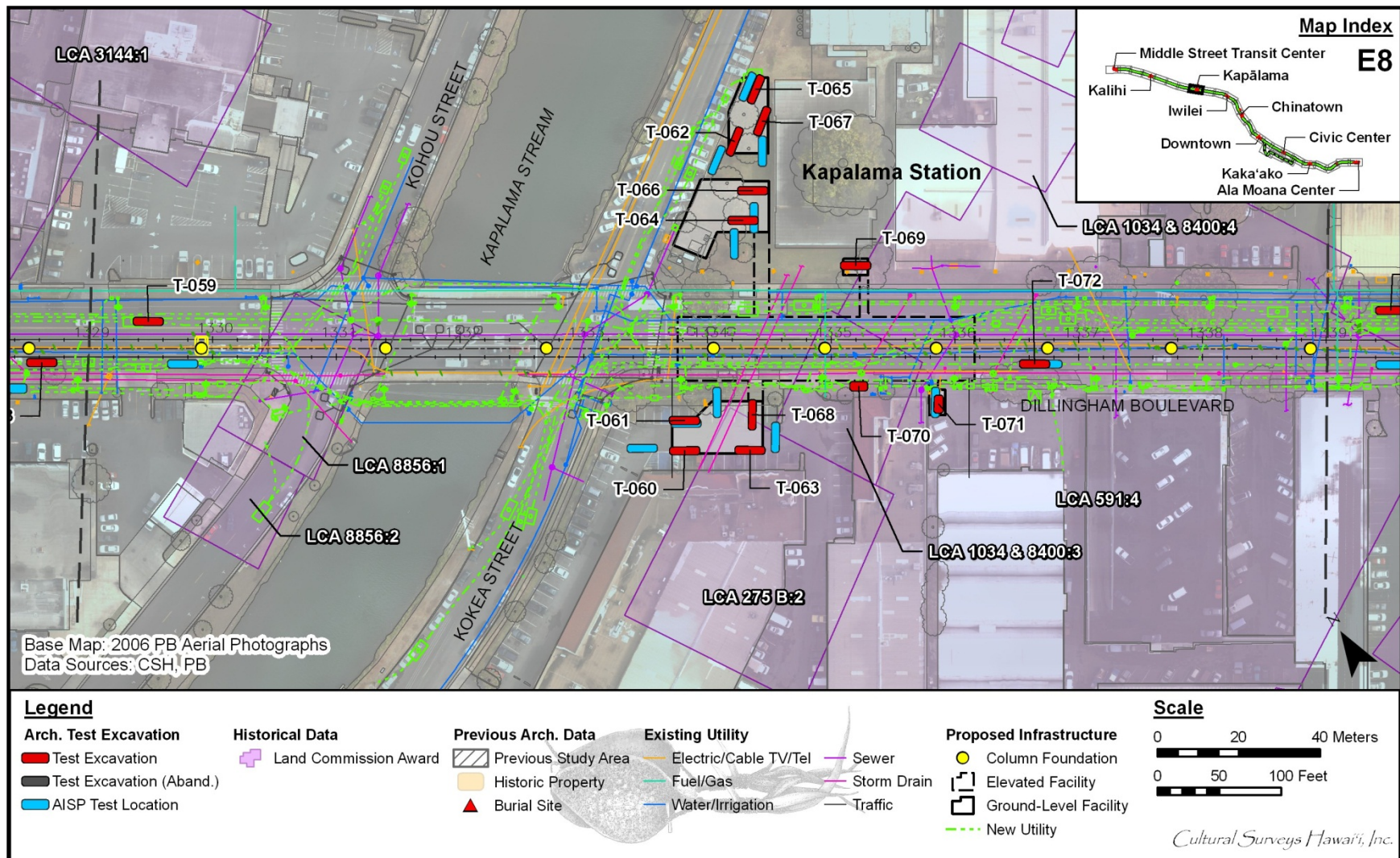


Figure 92. Map E8 (Dillingham Boulevard near Kapālama Station) showing locations of proposed AISP and actual AIS test excavations (see also detailed Kapālama Station figures, above)

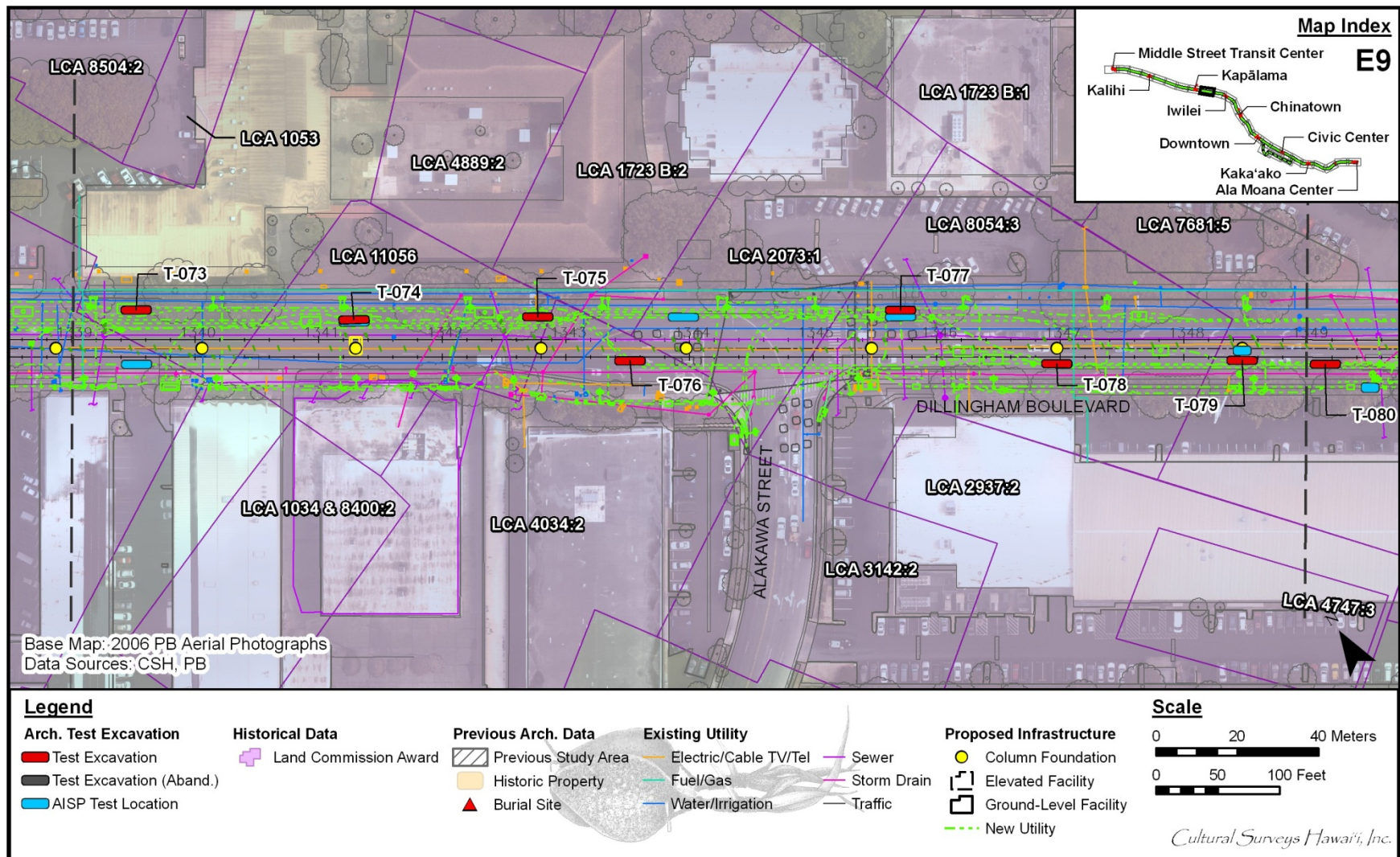


Figure 93. Map E9 (Dillingham Boulevard near Ala Kawa Street) showing locations of proposed AISP and actual AIS test excavations

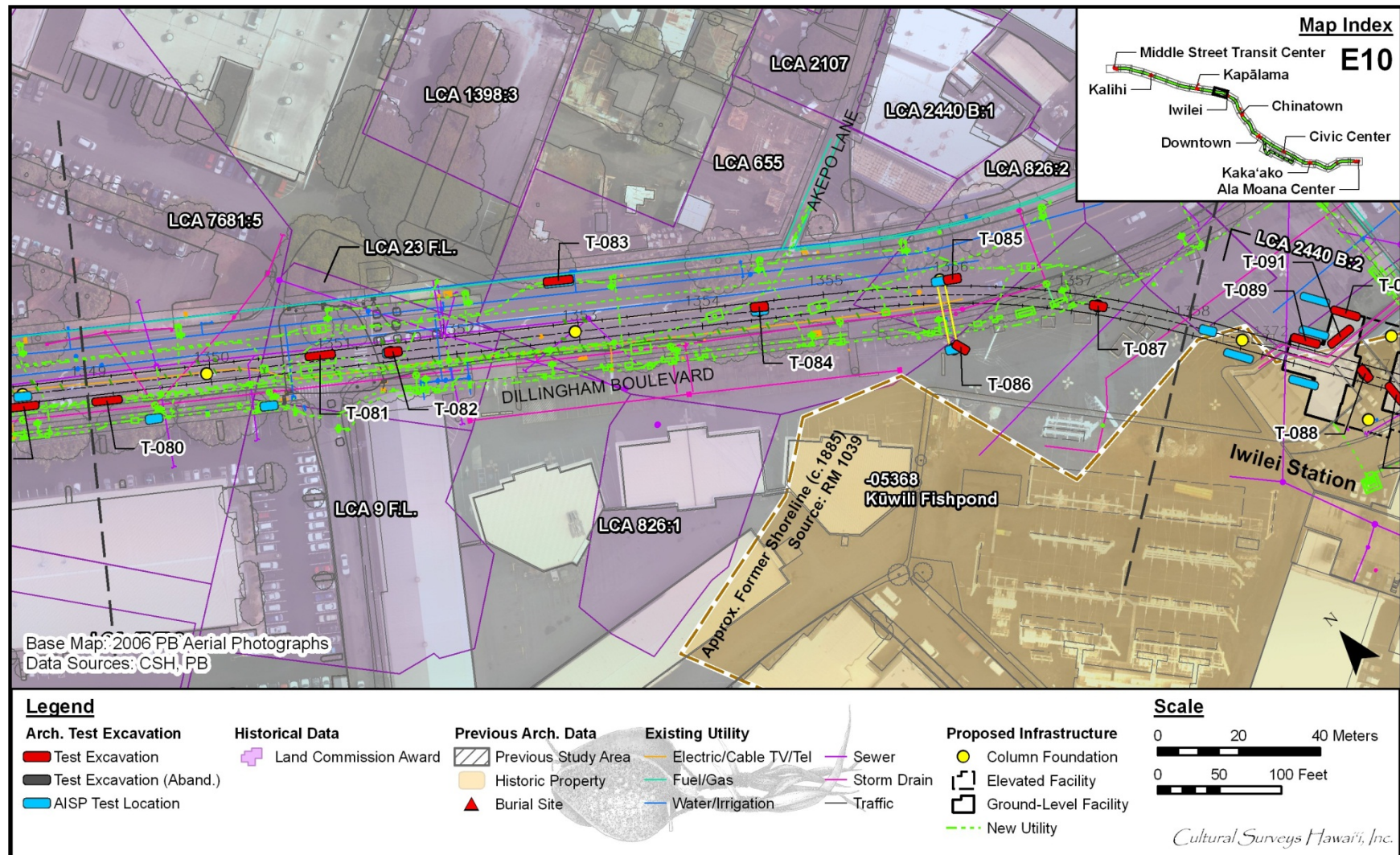


Figure 94. Map E10 (Dillingham Blvd. west of Iwilei Station) showing locations of proposed AISP and actual AIS test excavations (see also detailed Iwilei Station figures, above)

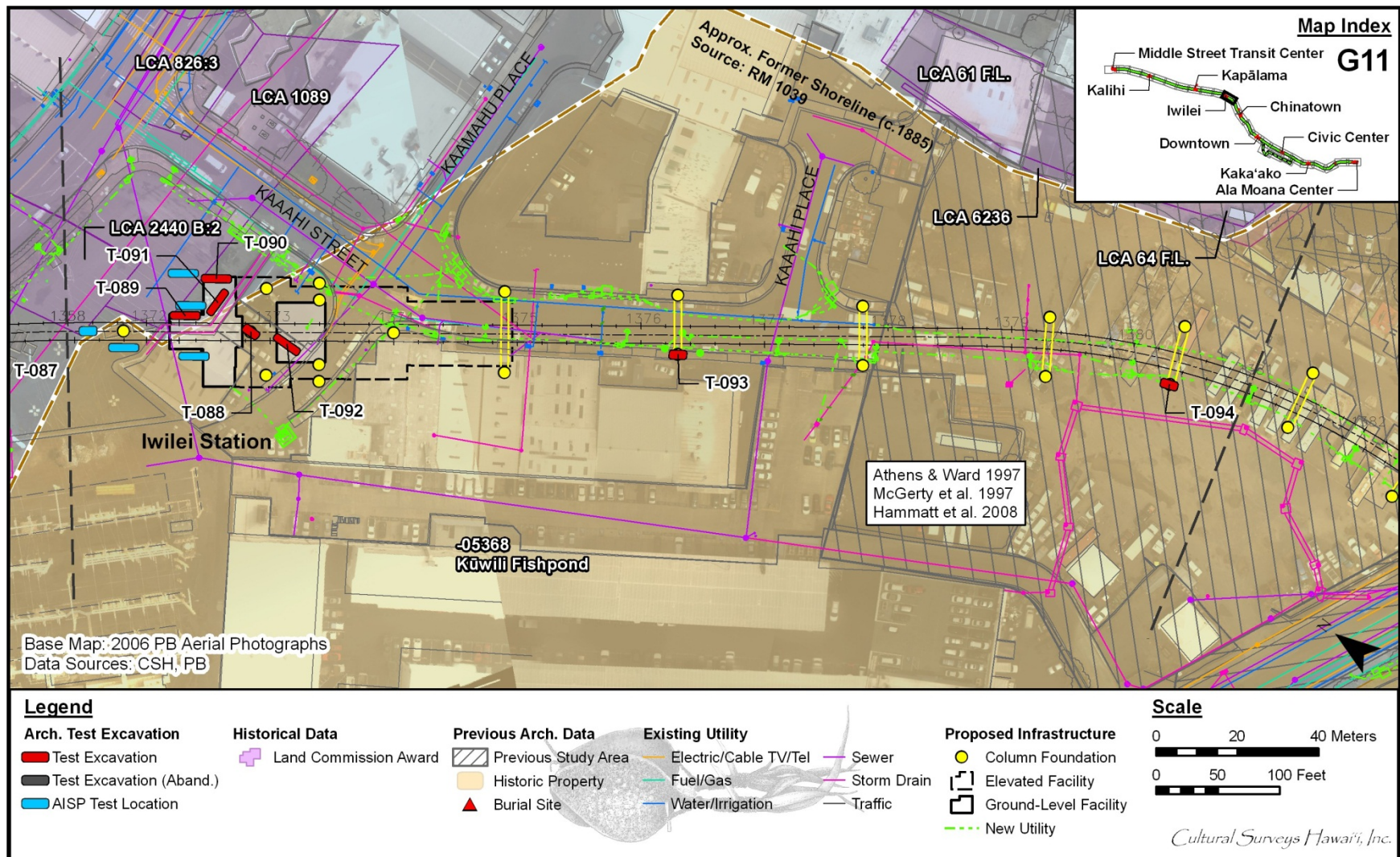


Figure 95. Map G11 (east of Iwilei Station) showing proposed locations of proposed AISP and actual AIS test excavations (see also detailed Iwilei Station figures, above)

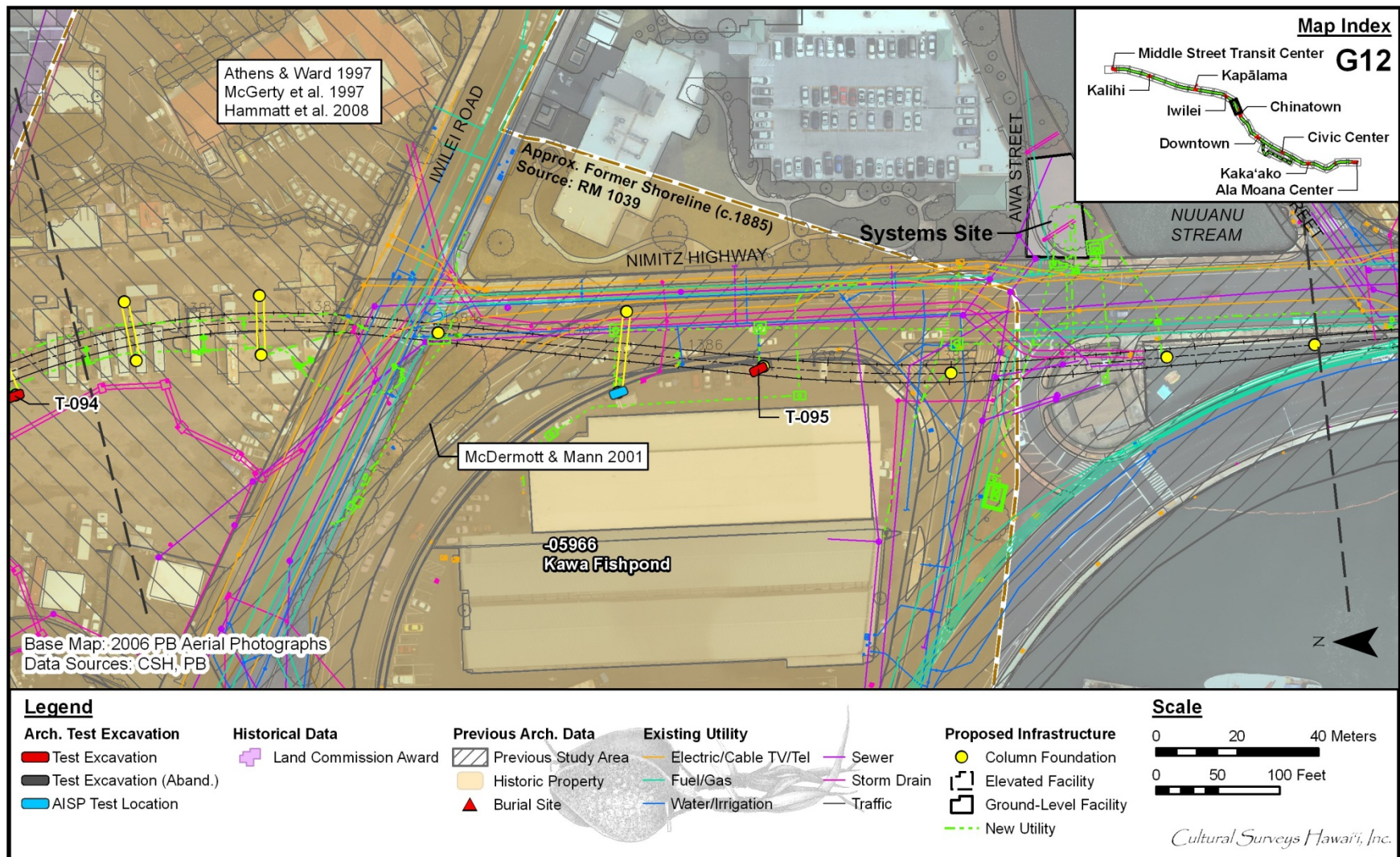


Figure 96. Map G12 (near Iwilei Road and the west side of Nu'uano Stream) showing locations of proposed AISP and actual AIS test excavations (note: this entire section was in fishponds or is seaward of the former shoreline)

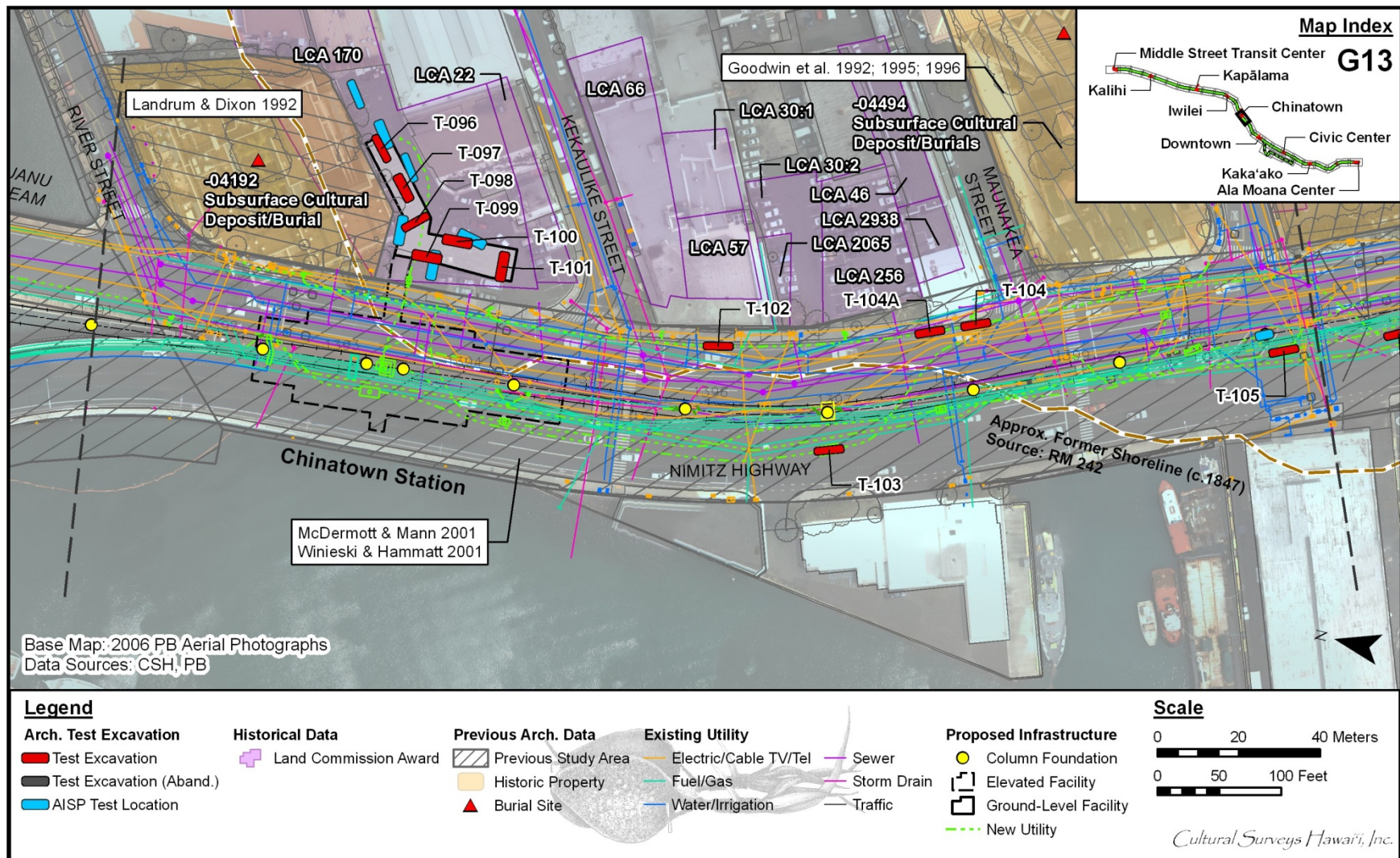


Figure 97. Map G13 (Nimitz Highway on the east side of Nu‘uanu Stream, near Chinatown Station) showing locations of proposed AISP and actual AIS test excavations (see also detailed Chinatown Station figures, above)

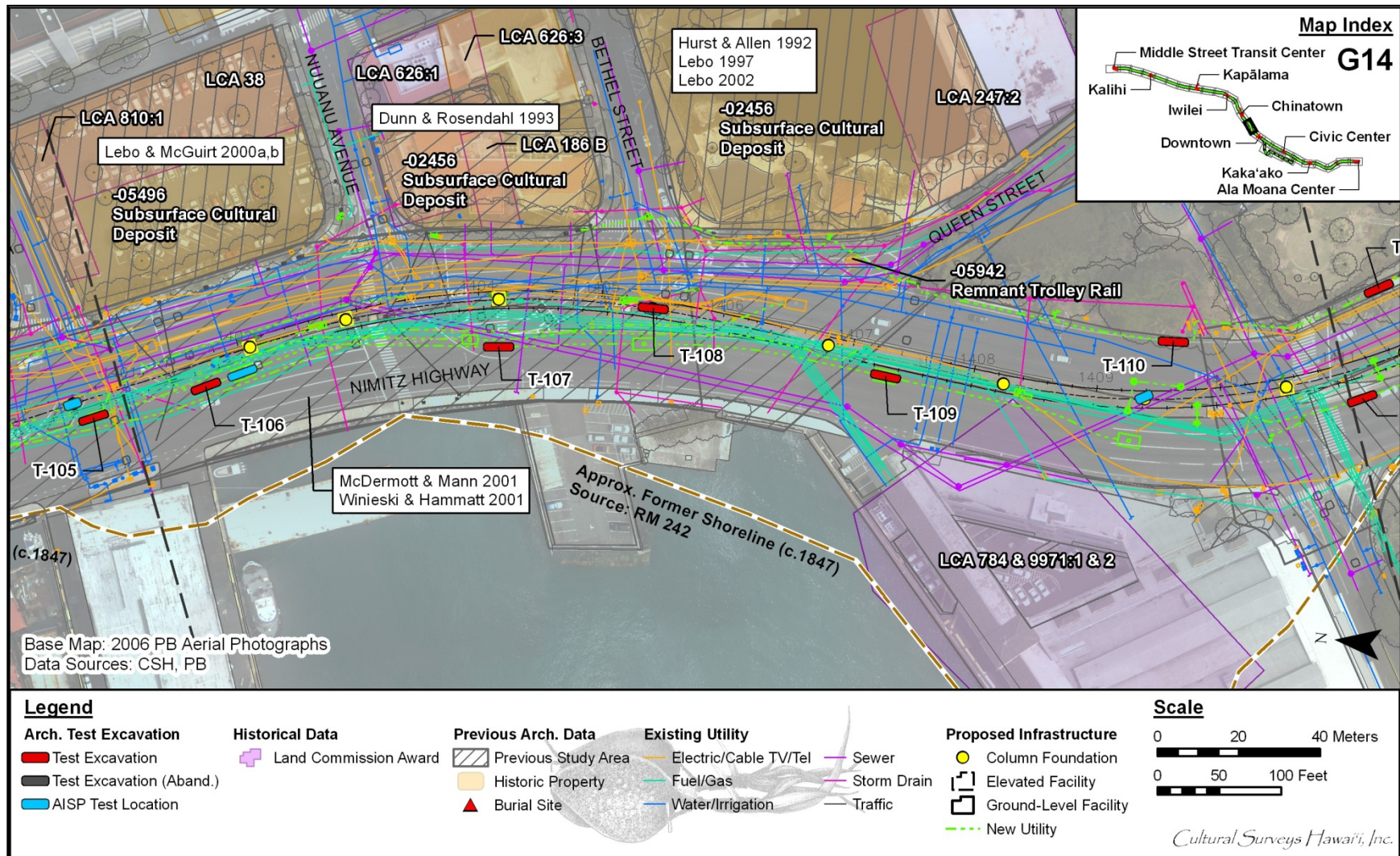


Figure 98. Map G14 (Nimitz Highway near Nu'uanu Avenue and Bethel Street and north of the Downtown Station) showing locations of proposed AISP and actual AIS test excavations

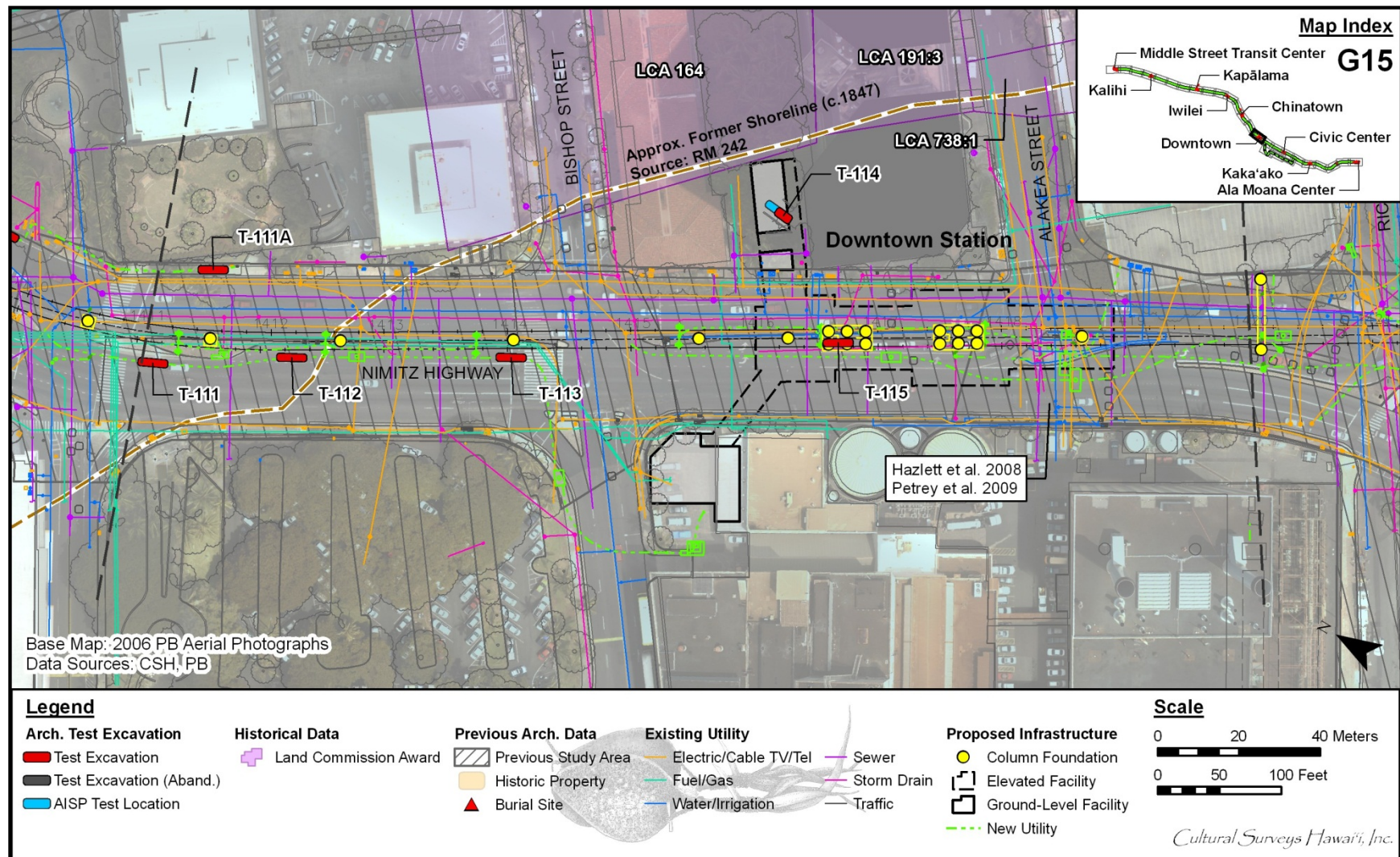


Figure 99. Map G15 (Nimitz Highway near the Downtown Station) showing locations of proposed AISP and actual AIS test excavations (see also detailed Downtown Station figures, above)

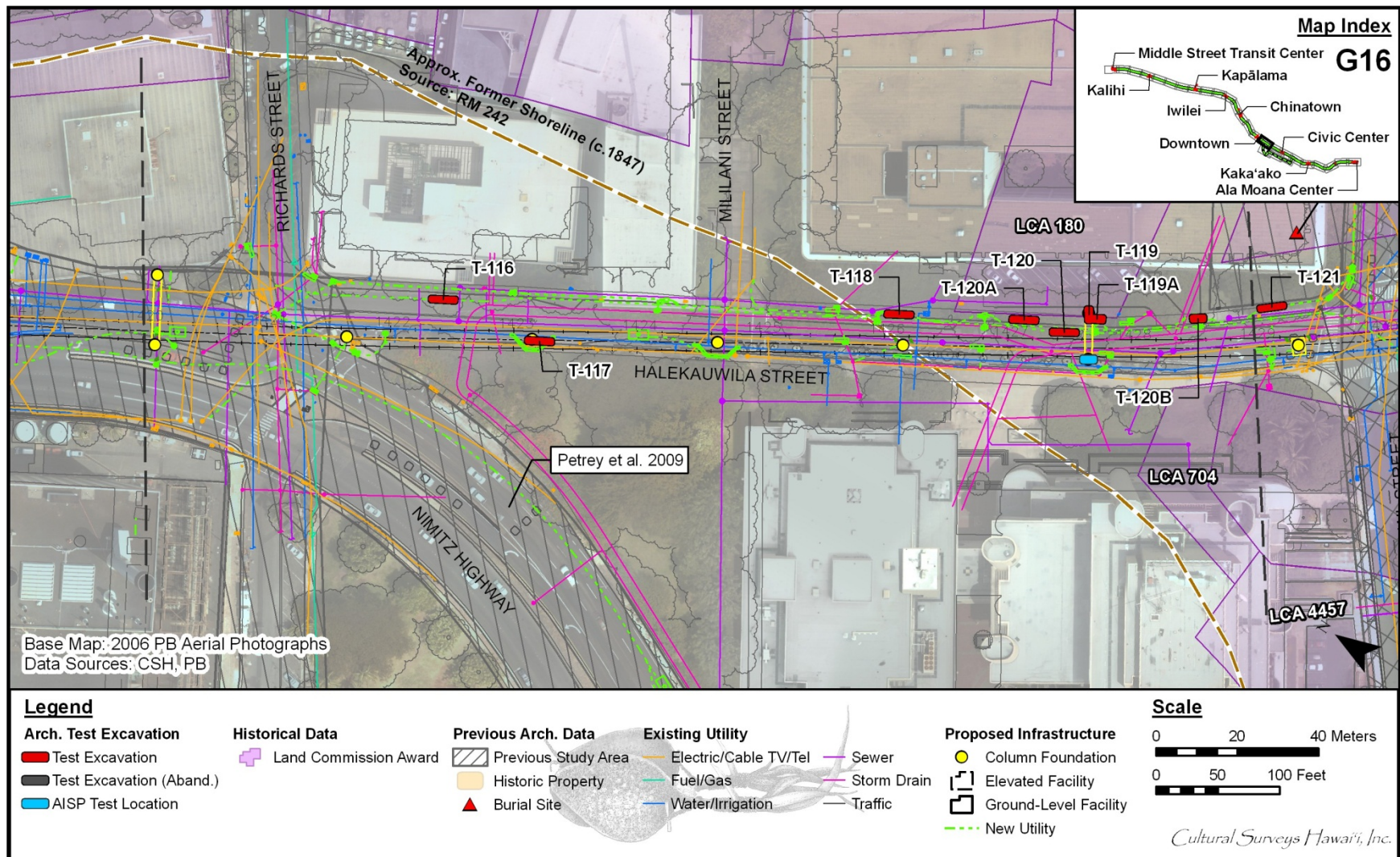


Figure 100. Map G16 (Nimitz Highway and Halekauwila Street southeast of the Downtown Station) near Mililani Street showing locations of proposed AISP and actual AIS test excavations

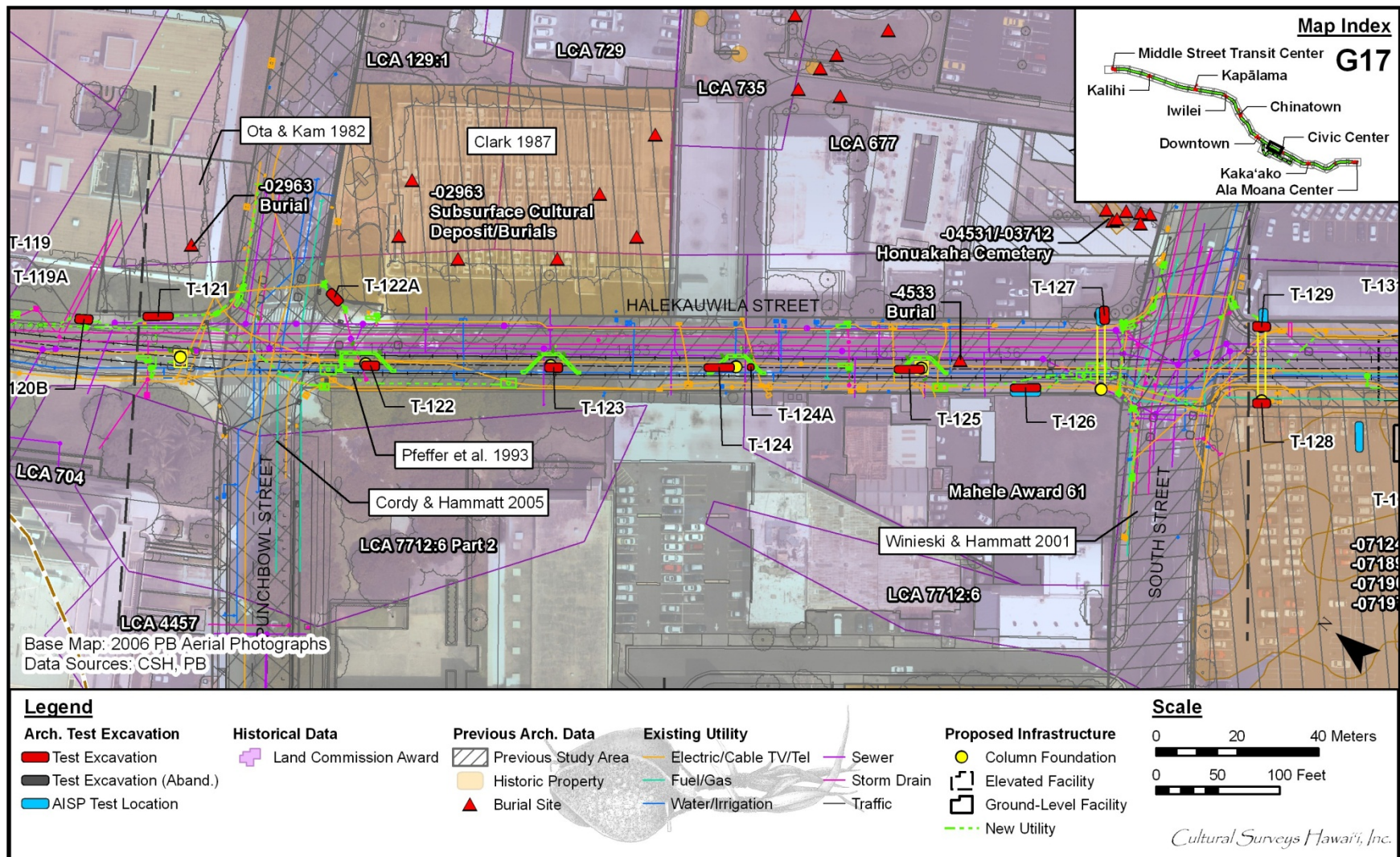


Figure 101. Map G17 (Halekauwila Street northwest of the Civic Center Station) showing locations of proposed AISP and actual AIS test excavations

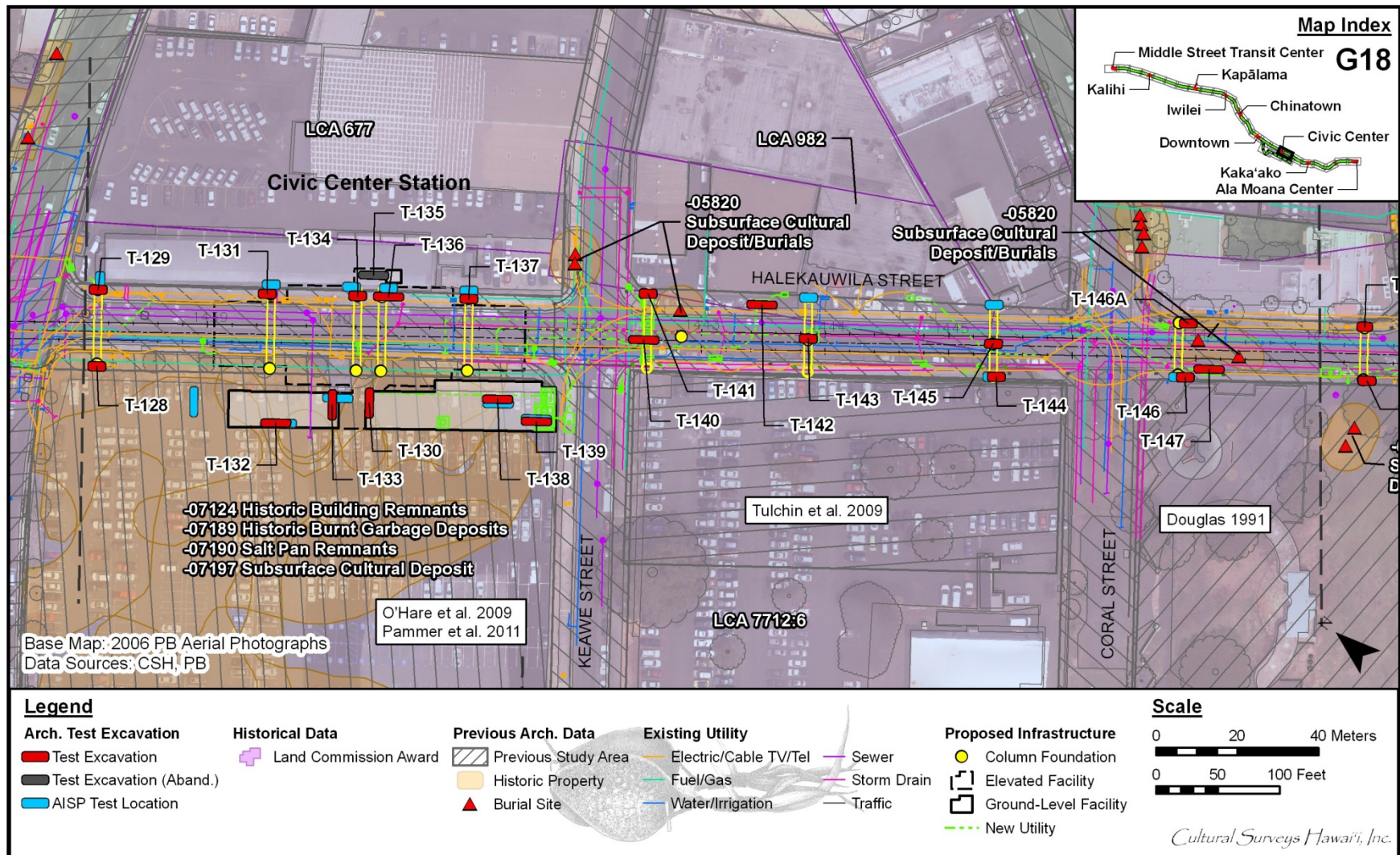


Figure 102. Map G18 (Halekauwila Street in the vicinity of the Civic Center Station) showing locations of proposed AISP and actual AIS test excavations (see also detailed Civic Center Station figures, above)

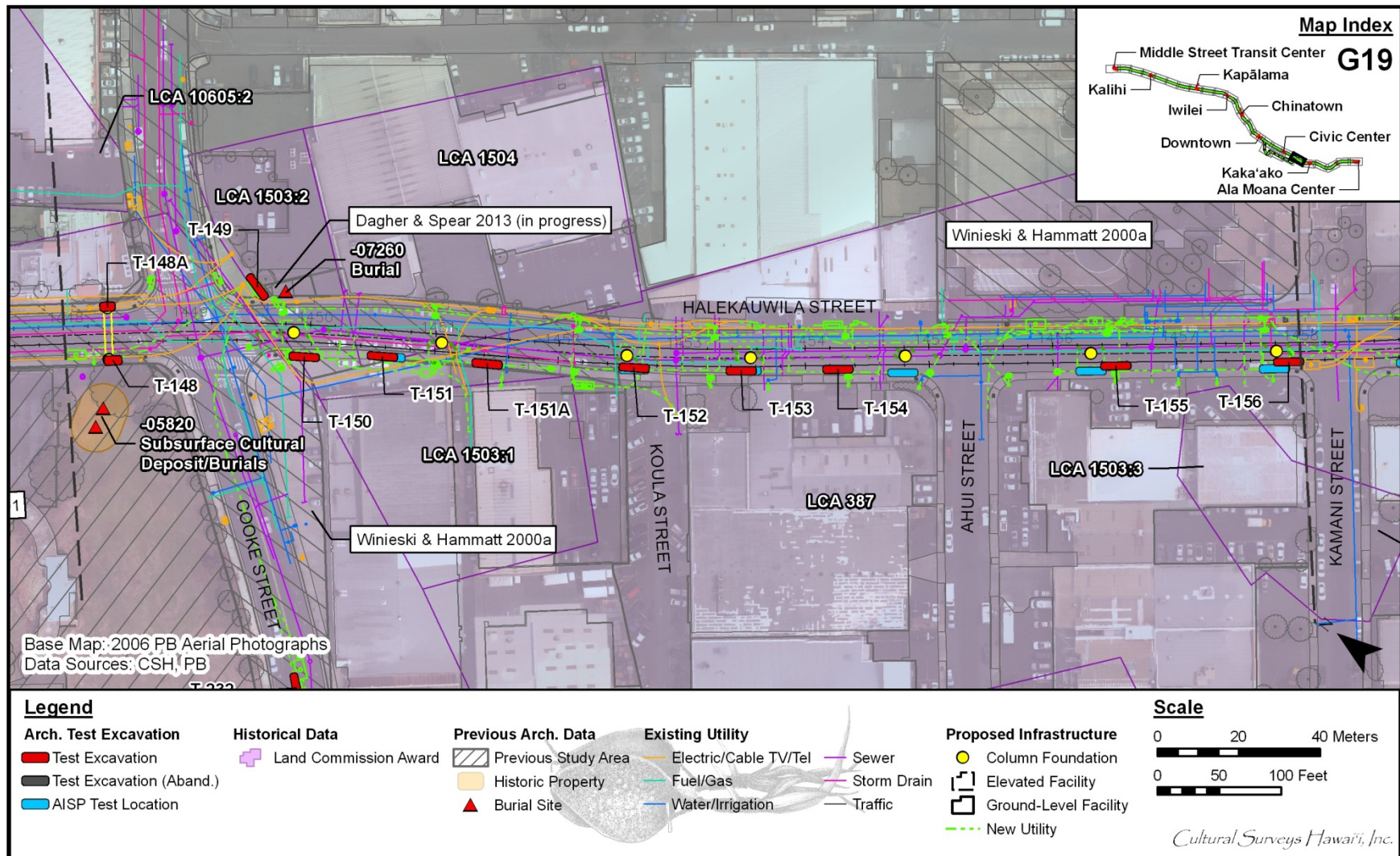


Figure 103. Map G19 (Halekauwila Street between Cooke and Kamani Streets) showing locations of proposed AISP and actual AIS test excavations

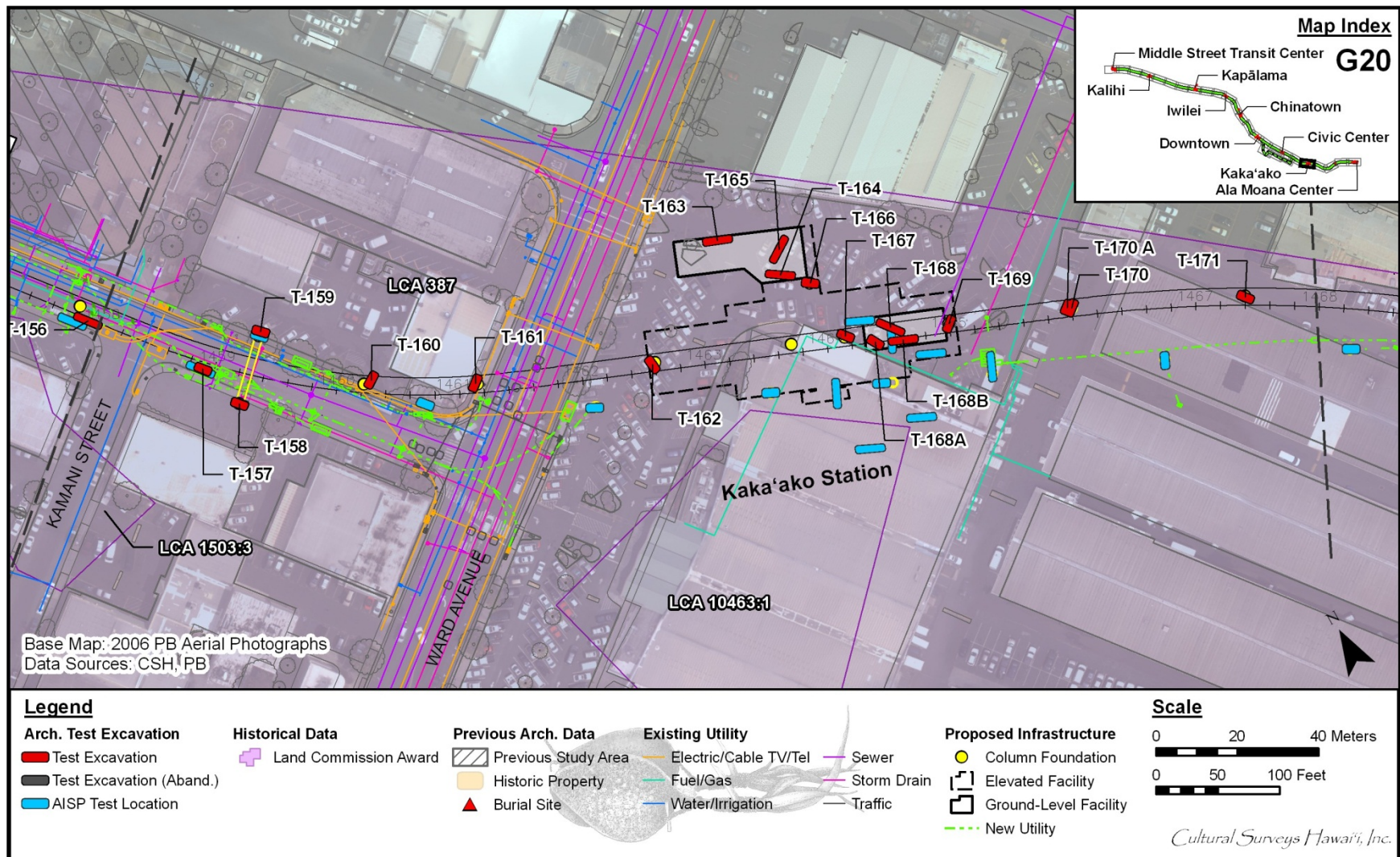


Figure 104. Map G20 (Kaka'ako Station) vicinity showing locations of proposed AISP and actual AIS test excavations (see also detailed Kaka'ako Station figures, above)

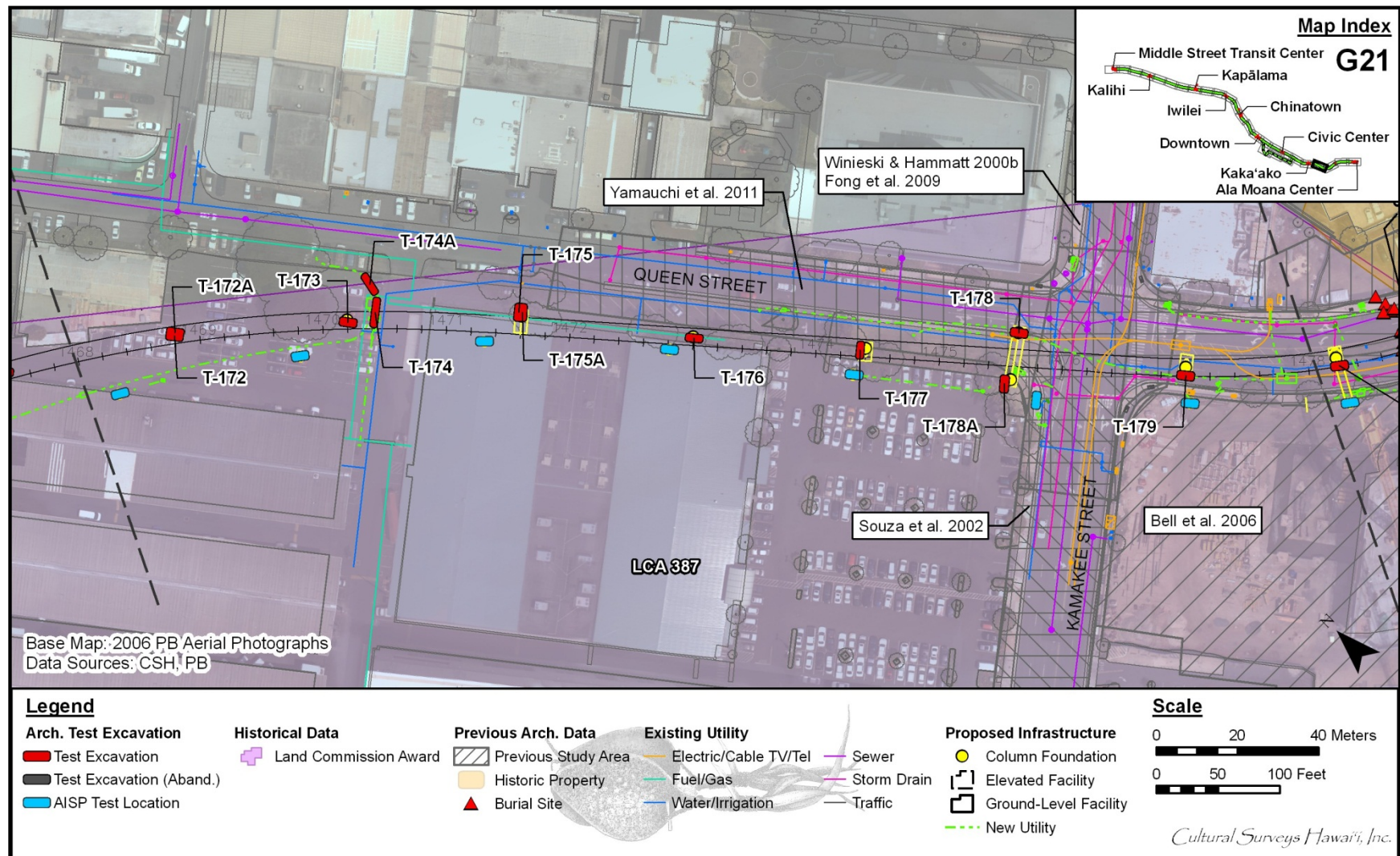


Figure 105. Map G21 (Queen Street and Kamake'e Street vicinity) showing locations of proposed AISP and actual AIS test excavations

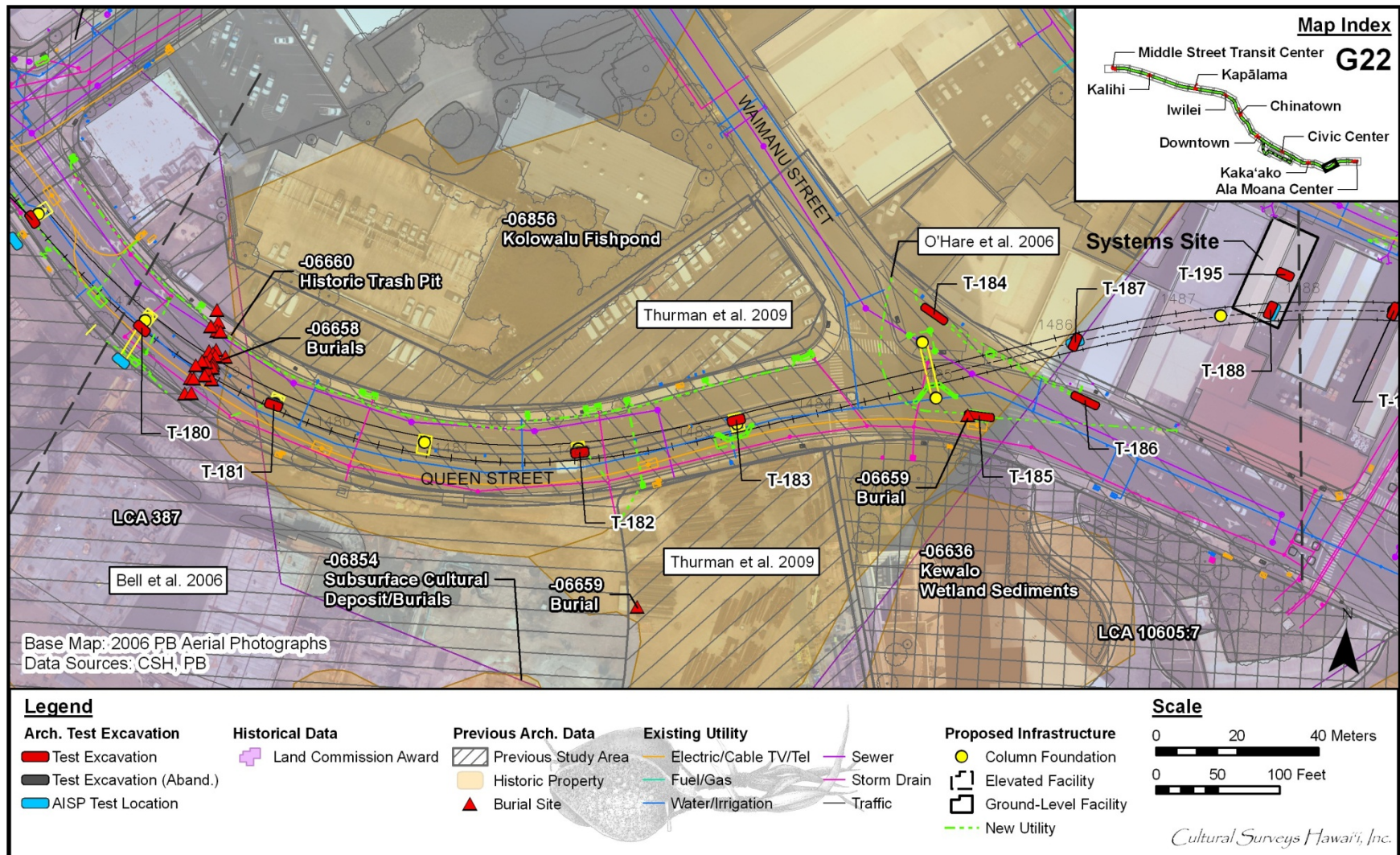


Figure 106. Map G22 (vicinity of Queen and Waimanu Streets intersection) showing locations of proposed AISP and actual AIS test excavations

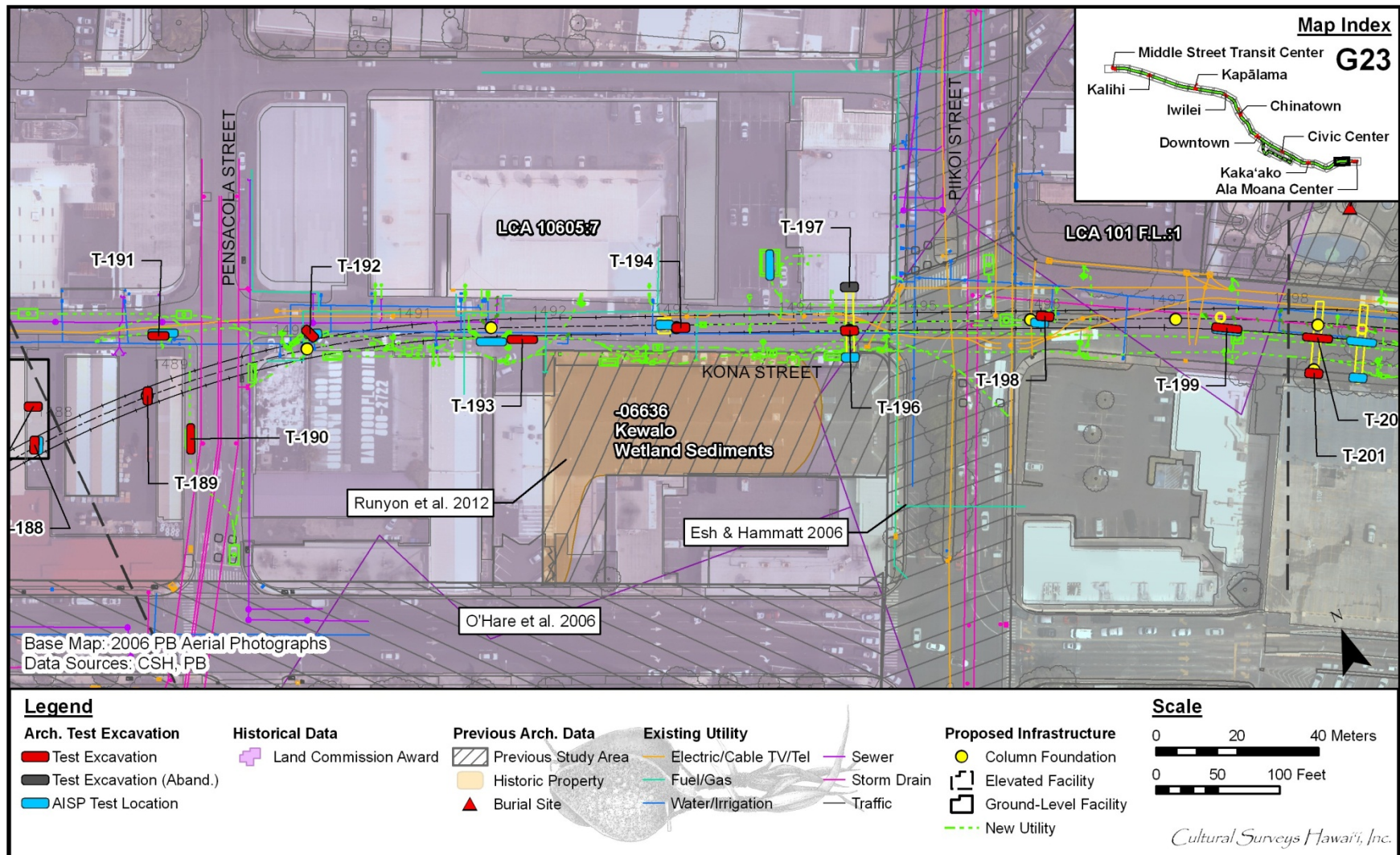


Figure 107. Map G23 (Kona Street in the vicinity of Pensacola and Pi'ikoi Streets) showing locations of proposed AISP and actual AIS test excavations

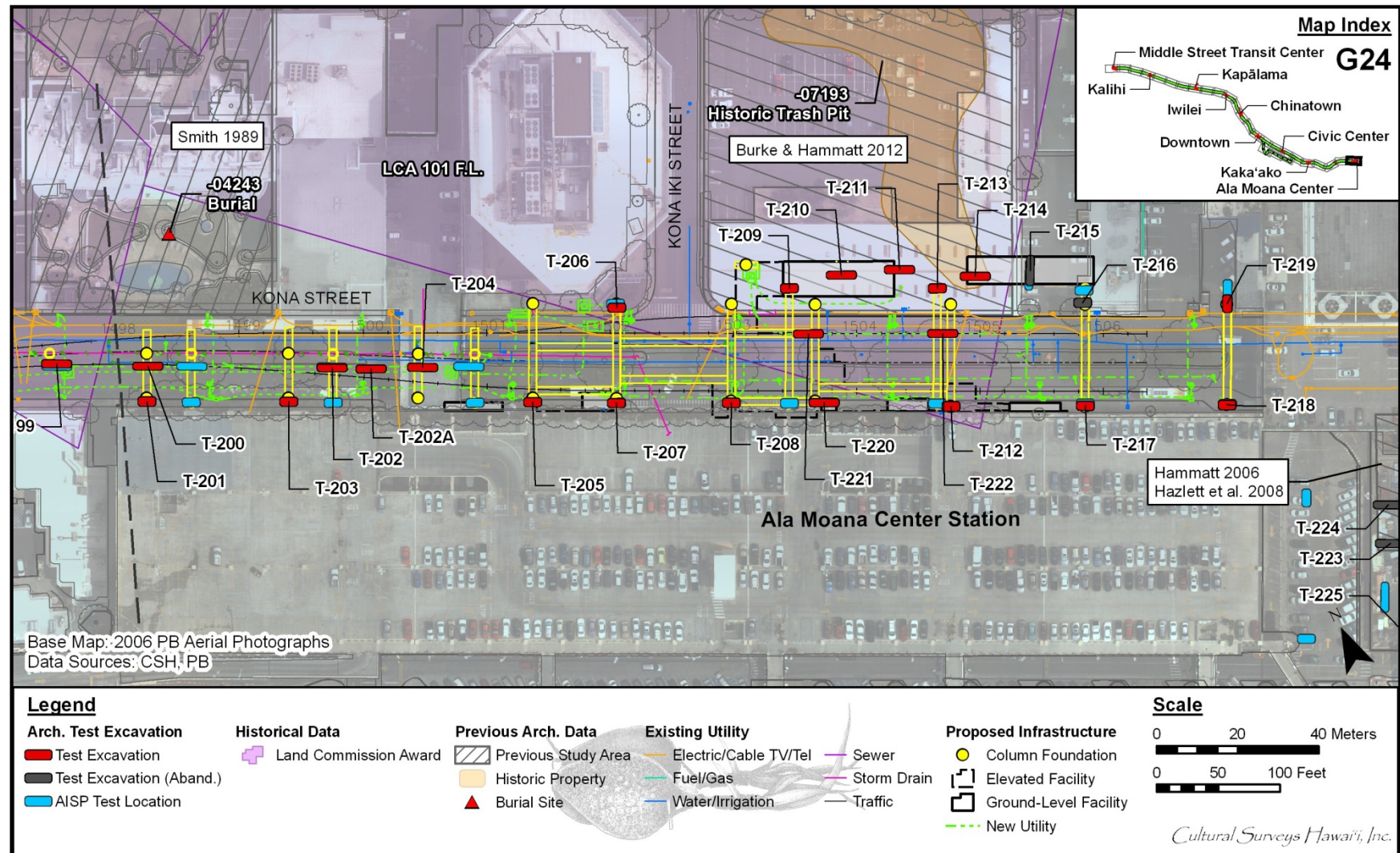


Figure 108. Map G24 (Kona Street just northwest of Ala Moana Station) showing locations of proposed AISP and actual AIS test excavations (see also detailed Ala Moana Station figures, above)

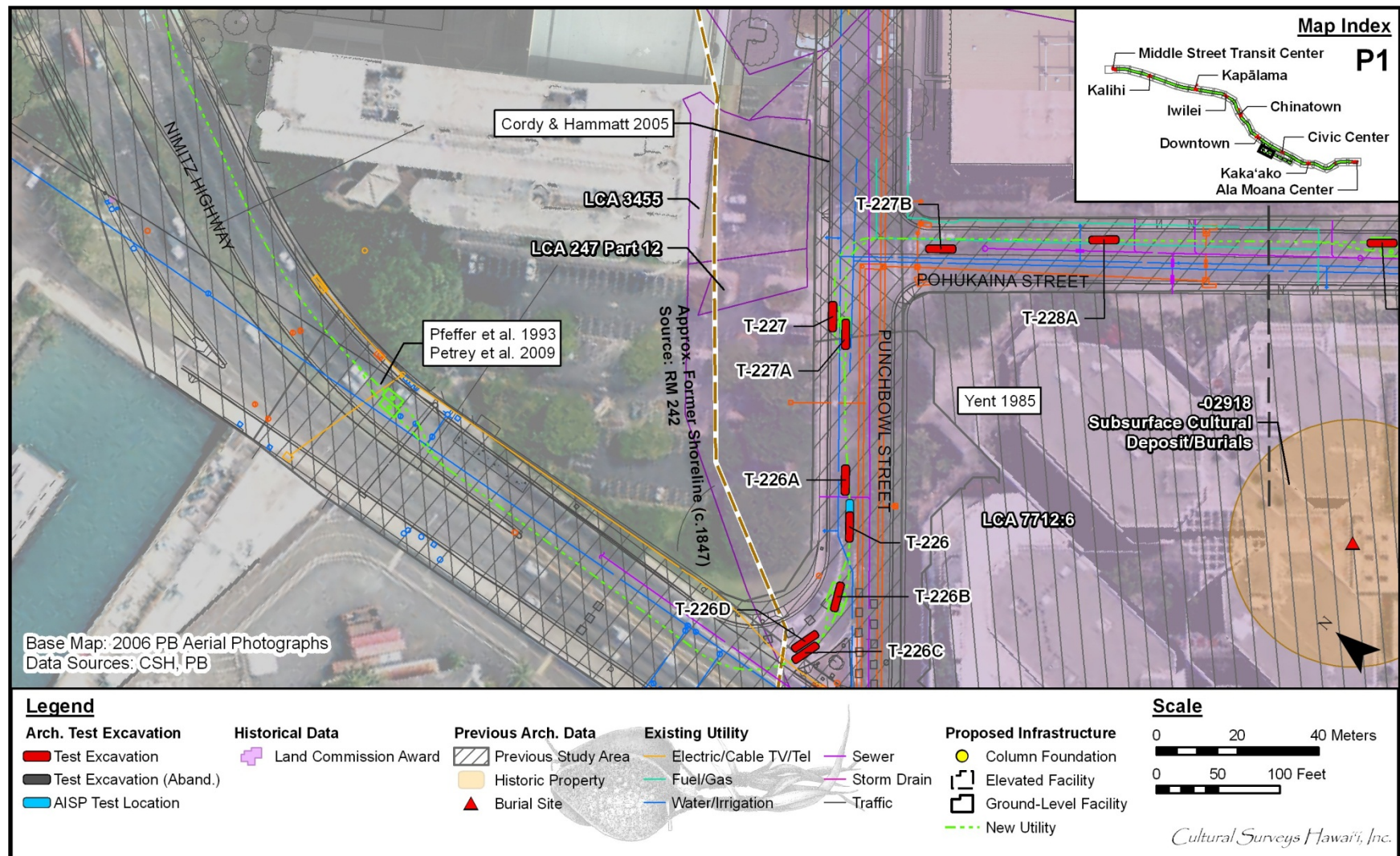


Figure 109. Map P1 (vicinity of Punchbowl and Pohukaina Streets) showing locations of proposed AISP and actual AIS test excavations

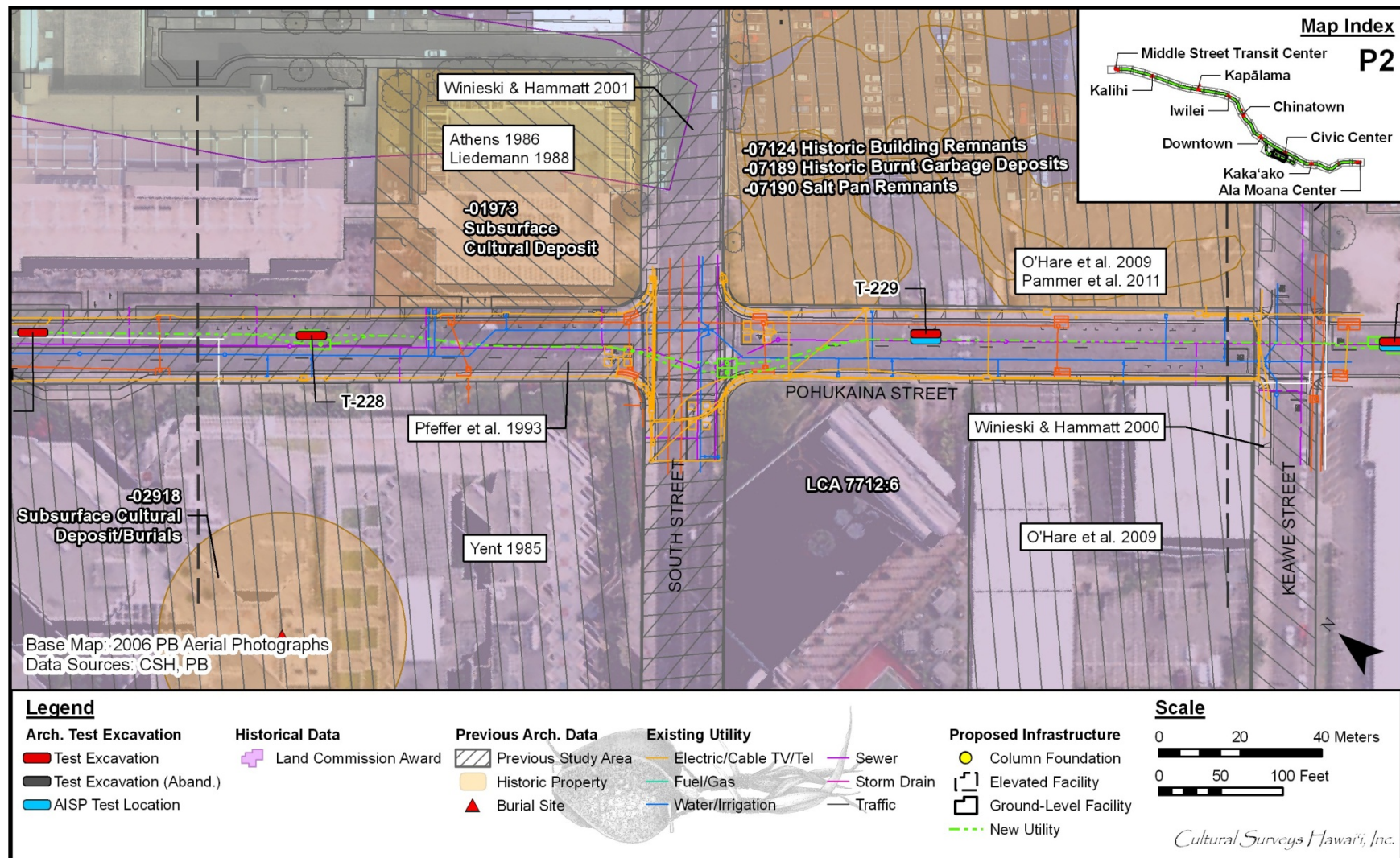


Figure 110. Map P2 (vicinity of Pohukaina and South Streets) showing locations of proposed AISP and actual AIS test excavations

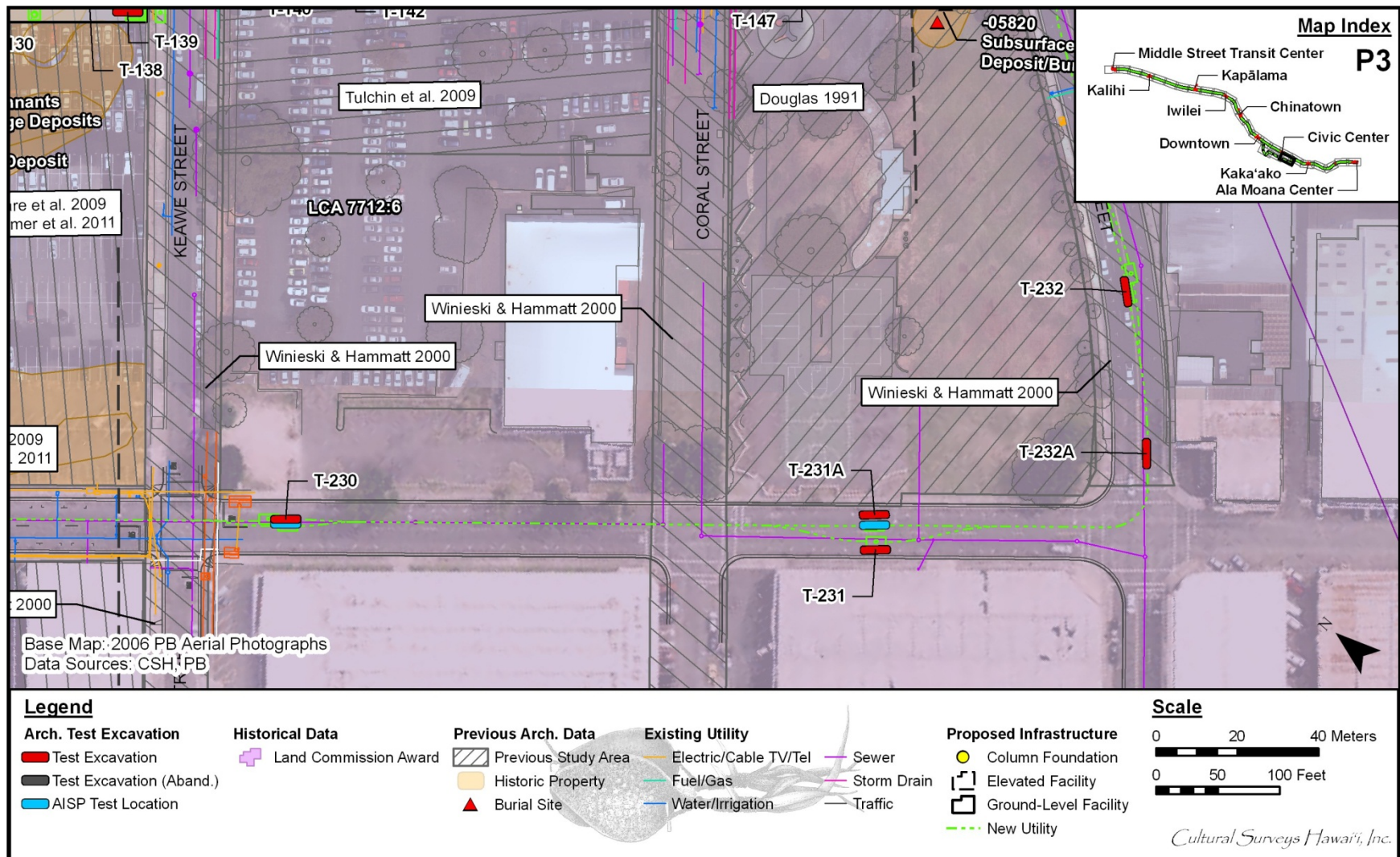


Figure 111. Map P3 (vicinity of Pohukaina , Keawe, Coral, and Cooke Streets) showing locations of proposed AISP and actual AIS test excavations